

# POPULAR Computing WEEKLY

Only 50p.

30 October–5 November 1986

Vol 5 No 44

**SPECIAL  
supplement**

## Sugar hits out at PC critics

**THE SPECTRUM  
Saga Compliment**  
– full review

Home control with  
the Red Box system

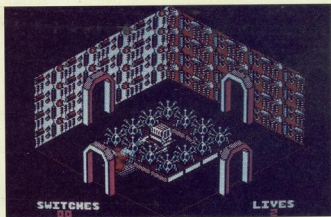
### REVIEWS

Sepulcri from  
Ariolasoft  
Firelord from  
Hewson  
starts on p 22

### NEWS DESK

Gallup speaks out  
on chart changes

Pirates ahoy! Robtek  
withdraws games





sinclair

128K

MONSTER MEM C

# GET YOUR HANDS ON THE NEW SINCLAIR 128K + 2. BEFORE EVERYBODY ELSE DOES.



The new 128K ZX Spectrum +2 is more than just a monster memory. It's the ultimate family computer.

With a built-in datacorder for easier loading, superb graphics capability, two joystick ports, a proper typewriter keyboard and more games available than you can shake a joystick at (well over 1000 software titles, in fact).

Better get your hands on the new 128K ZX Spectrum +2 soon. Before they do.

## £149

## MEMORY • MONSTER VALUE

**Available from:** Alders, Boots, Clydesdale, Comet, Connect, Co-op, Currys, Dixons, Electric Supreme, Laskys, John Lewis, John Menzies, Power City, Rumbelows, Ultimate, WH Smith, Wigfalls, and good independent stores.

**We recommend Sinclair Quality Control Software.**

To: Sinclair P.O. Box 462, Brentwood, Essex CM4 4EF.  
Please send me more information about the Sinclair 128K ZX Spectrum +2.

Name \_\_\_\_\_

Address \_\_\_\_\_

# sinclair

**NO GAME  
KICKS HARDER  
THAN INTERNATIONAL**

**KARATE**



SPECTRUM £6.50



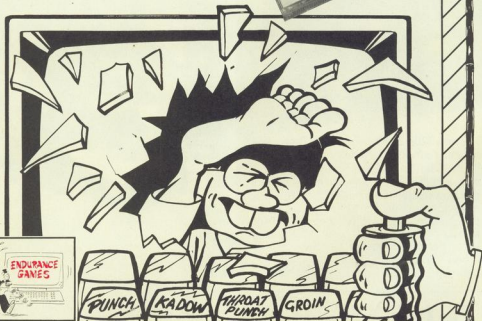
C16/4 £6.95



MSX £7.95



AMSTRAD DISK £12.95  
AMSTRAD CASS. £7.95



If you have any difficulty in obtaining a copy of International Karate, send your cheque or postal order made out to—  
Endurance Games Ltd., 28 Little Park Gardens, Enfield, Middlesex EN2 6PG. Tel. 01-367 8213.  
Don't forget to include your name, address and game format required. Allow 28 days for delivery.



## SOFTWARE ▶

## 15 Windos II

A windows/icons/pointer graphics system for the Spectrum, joystick or keyboard driven. Is it a little gem? Chris Jenkins finds out.



## 15 Newfile

More cut-price PC software from NewStar. This one's a database, and bears more than a passing resemblance to the well-known *Flexifile*.

## ◀ HARDWARE

## 16 Haba digitiser

Give your Atari ST digitised graphics using Haba's new device. Duncan Evans tries out its effects.

SPECIAL  
SUPPLEMENT  
THE SPECTRUM

**Saga Compliment** – upgrading your Spectrum to a serious word processor.

**RamPrint** gives your Spectrum a Centronics interface and built-in word processor.



First look . . . at Uridium, the Spectrum version, Shaolin's Road from The Edge, Thanatos from Durell, and US Gold's *Infiltrator*.

**The Red Box.** Domestic interfacing made easy at last.

## GAMES ▶

## 18 Adventure Corner

New for the BBC – Enthar 7 from Robico Software. Plus news of a BBC adventure writing utility.

## 20 Arcade Action

Full map of the first level of *Frost Byte*

from MikroGen – plus this week's Gallup Top Twenty.

## 22 Reviews

*Red Max* from Code Masters, Grem-lin's *Trailblazer*, Hewson's *Firelord*, Microdeal's *Electronic Pool* . . . it's all addictive stuff.

## ◀ PROGRAMMING

## 41 BBC/Electron

Get down to business with this spreadsheet.

## 42 Commodore 64

A neat storage transfer utility, brought to you by Adrian Millet.

## 44 Spectrum

Twist your screen pictures to fit a spherical surface. By Geoffrey Wearmouth.

## 44 Amstrad CPCs

Ease the programming load with abbreviations for keywords.

## 45 QL

Front end cataloguing by Gareth Morgan.

## 46 Bytes and Pieces

## 49 Peek and Poke

## REGULARS ▶

## 6 News Desk

## 12 Letters, Chess

## 51 Communications

## 52 Soundcheck

Two new music packages for the Spectrum 128 have caught Mark Jenkins' attention.

## 60 New Releases

## 62 Ziggurat, Hackers

Editor Christina Erskine **News** editor John Lettice **Features** editor John Cook **Technical** editor Duncan Evans **Production** editor Michelle Beauchamp **Supplements** editor Christopher Jenkins **Supplements** designer Barbara Hsieh **Advertisement** and **Promotions** manager Simon Langston **Assistant advertisement manager** David Olsen **Advertisement executive** Jon Beales **Classified executive** Rodney Woodley **Editorial secretary** Annmarie O'Dwyer **Administration** Geraldine Smyth **Managing editor** Peter Worlock **Publishing director** Jenny Ireland. **Published** by Sunshine Publications Ltd, 12–13 Little Newport Street, London WC2H 7PP. Tel 01-437 4343 Telex 296275 Fax 01-439 0681 **Typeset** by Magazine Typesetters, 6 Parnell Court, East Portway, Andover, Hampshire. **Printed** by McCorquodale Magazines, Andover, Hampshire. **Distributed** by S M Distribution, London SW9, Tel 01-274 8611, Telex 261643. © Sunshine Publications Ltd 1986. ISSN 0265-0599

**Popular Computing Weekly. Tel: 01-437 4343.**

**ABC**

**How to submit articles** Articles which are submitted for publication should not be more than 2000 words long. The articles, and any accompanying programs, should be original. It is breaching the law of copyright to copy programs out of other magazines and submit them here – so please do not be tempted. We cannot guarantee to return your programs – so please do not send your only copy. **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

# Amstrad acts over PC allegations

AMSTRAD is currently considering legal action over suggestions that ICI would not purchase its PC in bulk because of doubts over its reliability. The company's share price fell from 128p to 116p after the Sunday Times quoted an ICI source as saying the machine could be prone to overheating.

In the wake of the share price drop Amstrad hand-delivered a press statement categorically denying the allegations, and this seems to

have stopped the slide. Speaking to *Popular*, the Amstrad chairman described the allegations as "a pack of lies" and said the matter was in the hands of the company's lawyers. He would not, however, comment on what action the company proposed to take.

The statement itself refers to a "concerted dirty tricks campaign" designed to damage Amstrad, but although Sugar says he knows who is responsible he refuses to



PC allegations hotly disputed

name names. Dealers in other machines are, however, taking the rumour up with gusto. He categorically denies the overheating allegation, claiming that Amstrad has tested a wide range of add-on cards in the machine, but says he

won't be held responsible for "some Taiwanese card that won't even run in an IBM".

Nor does he accept that the future of the PC rests on whether or not ICI decides to buy it. "We have loads of corporate clients already."



HERE we see Geoff Heath, erstwhile boss of Melbourne House and Activision, and now preparing for his latest post as head of new business development at Mastertronic.

Our more alert readers will note that he's changed somewhat in the previous week, but before putting this down to the strain of the new job they should be aware that the picture we published last week was in fact William Poel of New Star. Apologies to all concerned.

## Budget range to Power Up PC

US SOFTWARE producer Channelmark Corporation is bringing its range of Power Up! programs into this country. Company president Ed Lauing describes the products as "accessory software." The packages are priced between £25 and £60, and generally perform a single task, either as a stand-alone program or as a desktop accessory.

The software range includes a calendar designer, grid designer, text retrieval system and poster production program.

Details from Power Up!, Imperial House, Lower Teddington Road, Kingston-Upon-Thames, Surrey KT1 4EP (01-943 4366).

## Ocean story was dead wrong

OCEAN'S decision to abandon the Amstrad version of *Superbowl* has had a strange knock-on effect - programmer Tony Cooper is having trouble convincing people he's still alive.

Ocean had explained to the Advertising Standards Authority that the Amstrad conversion had been dropped because of the death of the programmer, and as Cooper was doing the conversion he found he had a problem. "People laugh at me when I say I'm Tony Cooper. They say, 'but you're dead aren't you?'"

"It is bizarre," says Colin Stokes of Ocean, "it's blown out of all proportion. I had a conversation with the ASA and I told them that the guy who was putting all the logic in the game together was killed." According to Stokes, people have simply drawn the wrong conclusion.

"We wouldn't make up something like that," he says.

## Mastertronic in talks over Gallup charts

MASTERTRONIC'S sudden absence from the games software charts (see last week's News Desk) is likely to be short lived. Gallup, which compiles the charts, concedes that the addition of W H Smith to the chart panel has weighted the chart against Mastertronic and has been talking to the company in an attempt to get a more accurate picture of Mastertronic's sales levels.

"Inevitably our figures undervalue the total size of the budget business," says Godfrey Rust of Gallup. The Gallup chart, he says, is in-

tended to show what's selling in the high streets, and therefore many of Mastertronic's outlets will never be featured. W H Smith, however, doesn't stock Mastertronic products, so its arrival in the charts has thrown them out of balance.

Gallup will, however, be talking to Boots about joining the chart panel this week, and hopes that this plus the addition of a few other retailers will put the charts right. Boots currently uses its own chart, which is simply a list of the products the company expects to sell.

Frank Herman of Mastertronic feels that Gallup now recognises the importance of getting a better representation of the company's sales in the charts. "Otherwise they're just going to keep on publishing misleading information."

But Rust is keen to stress that Gallup wasn't going to back down by "not including Smith's data just because it creates a problem in another area."

"The importance of our data is shown by how concerned Mastertronic are," he says.

# Mastertronic to act after piracy claim

MASTERTRONIC was last week planning legal action against IJK Software for piracy.

According to Mastertronic spokeswoman Alison Beasley *Crimebusters Inc.*, a recent release from IJK, is "almost an exact copy" of Mastertronic's *Spellbound*.

The *Crimebusters* inlay credits Harry Price with the programming, but Beasley claims that it has been only slightly modified from the Mastertronic program written by David Jones. "We've issued a

very strong letter urging them to settle the matter now, and if they don't they'll be sorry.

"It's beyond belief that they should rip off such a well known program." She finds it particularly annoying that the IJK game retails at £6.90, while the Mastertronic original is, as usual, £1.99.

Another of IJK's releases, *Quest for Freedom*, a £1.99 Electron game, is similar to Audiogenic's *The Last of the Free*, with even the wording on the inlay cards having a



Free for all?

great deal in common.

Henry Smithson of Audiogenic says that the game is his copyright, but won't decide what action to take before he's seen a copy.

Audiogenic's programmer had sent an evaluation copy to IJK prior to signing with Audiogenic, but although he was paid £300 to rewrite four screens of it for the Electron



for IJK, Smithson says he wasn't told it was to be released.

"I'm not particularly worried," says Smithson. "It's tantamount to sharp practice to get somebody to write something then release it without telling them, but he (the programmer) isn't out of pocket, plus he's still got the Electron."

# Commodore knocks £500 off Amiga price

COMMODORE effectively cut the price of the Amiga by £500 last week, bringing the price of the basic system of 256K Ram, single drive, mon-

itor and mouse down to £975 and the twin drive system down to £1,175.

In theory the cut only applies to existing Commodore

owners, and according to a spokesman will only be valid until the end of November. Commodore has a list of 400,000 people in this country who have at one time or another registered a guarantee card with the company, and these should have received a letter offering the Amiga discount at the beginning of this week.

With numbers of this size, however, Commodore is unlikely to be able to stop anyone who wants an Amiga using somebody else's letter, and as the object is to sell large quantities of Amigas it's equally unlikely that the company cares. The Amiga has so far sold 120-150,000 worldwide, but hasn't made much impression in the UK.

Commodore is adamant that the offer is only valid until the end of next month, but as the company intends to launch two new Amigas at Comdex shortly the existing Amiga may well be discounted beyond that.

## Electron gets adventure system

INCENTIVE'S *Adventure Creator* is to be released for the Electron towards the end of November, price £14.95. The system can handle complex sentences with multiple command lines and features text compression and a chain command that allows adventures to be strung together into multi-part games.

Details from Incentive Software, 54 London Street, Reading RG1 4SG. Tel: 0734 591678.

## Intelligent modem launched for PC

THE Pacer is an intelligent autodialling card modem for the IBM PC and compatibles which can communicate in a range of modes up to 2400 bauds. It includes Hayes compatible autodialling and will operate with various comms software packages, including *Crosstalk*, *Smartcom Relay* and *Softerm*. It costs £595.

Details from Penril Datacomm, 387 Sykes Road, Slough Trading Estate, Slough, Berks SL1 4SJ. Tel: 0753 821898.



Amiga: Commodore cuts it down

# Piracy forces withdrawal of Robtek tape

ROBTEK has promised to withdraw its *King Size* MSX compilation tape after the revelation that three of the games included had been pirated. Copyright to the three, *Exploding Atoms*, *Vicious Viper* and a version of *Othello*, is owned by MSX specialist Knights Computers, which still sells them at £5.99 each.

"The version of *Atoms* supplied by Robtek does not work properly," says Knights' owner Graham Knight. "When they deleted our copyright notice from the program they also deleted a hidden but vital line of code." The name of *Vicious Viper* has been changed on the inlay to *Snakes*, but the game itself hasn't been altered, even retaining the copyright notice. *Othello* retains a Knights logo on every screen.

A Robtek spokeswoman told *Popular Computing Week-*

ly that it had stopped selling the product, and had "apologised profusely to Knight." The games had, she said, been sold to Robtek by "a third party." She was, however, unable to name the person or company concerned.

Graham Knight hasn't yet decided whether to take the matter further, but says he'll probably wait to see if the product currently on sale is withdrawn. He does, however, complain that Robtek hasn't given him the name of the pirate, and surmises that Sanyo and Mitsubishi, who bought large numbers of the full price programs from him, are likely to be interested in the matter.

He doubts that Robtek is guilty of anything other than carelessness. "Anyone who copies a program and doesn't remove the copyright notice has got to be crazy," he says.

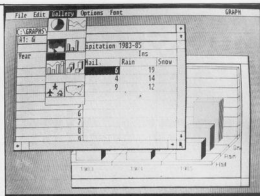
## Amstrad plans modem for PC1512

AMSTRAD is thought to be planning to release a modem and comms software package for the PC1512 in January. Few details are as yet available, but it seems that the package is being produced by Pace, which has already produced a rebadged version of its Nightingale

modem and a serial interface for the CPC series for Amstrad.

Pace managing director Barry Rubery admits that his company is doing development work for Amstrad in the comms field, but although he doesn't deny that the next product will be for the PC he won't give any details of it.

Amstrad does, however, seem to be looking to Pace to develop comms products for its machines. Rubery claims to have sold 4,000 Nightingales on the strength of the Amstrad deal, and suggests that from Amstrad's point of view it's probably more economical to have third parties produce add-on products than to produce them itself.



More memory for Gem

## DR to launch new Gem version

DIGITAL Research, which produced the Gem graphic environment used by the Amstrad PC, is to launch Gem XM, an enhanced version of the system, next week. DR won't talk about the product prior to the launch, but describes it as "a major development of the standard Gem," although not a replacement for it.

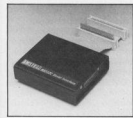
Gem XM will, however, be a system in the same vein as Concurrent Dos XM (Extra Memory), designed to address larger quantities of memory than the 640K available under MSDOS. It will not support true concurrency, where several programs can run simultaneously in a computer's memory, but will be

able to store several programs in memory at once and switch between them.

The new version of Gem is a response to the PC's 640K limit (the ST can address a total of 16Mb), which is likely to become a serious limitation over the next few years.

Various manufacturers are, however, now producing add-on memory boards that allow users to control up to 8Mb, and the production of a Gem system that takes advantage of this is a logical step for DR.

The company's ultimate goal is to produce a version of Gem that provides true concurrency, but it's likely to be some time before this appears.



Pace's serial interface

## NewStar denies policy change

NEWSTAR Software has raised the price of *NewWord 2* and *3* packages, from £69.95 and £249 to £149.95 and £299 respectively.

However, NewStar's boss William Poel denies that this marks any change of policy.

"We've put the prices of these two products up but the other 300 products all remain the same. With *NewWords 2* and *3*, we had difficulty getting people to believe that the products were an upgrade to *WordStar* itself at the previous price.

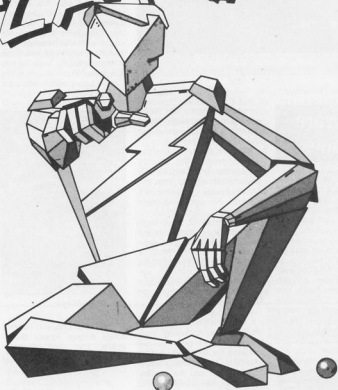
## Footnotes

SIR Clive Sinclair may have been out of the public eye for a while, but the slings and arrows continue to pursue him. Take this piece of gobbledegook from Penguin's blurb for recently published Sinclair and the Sunrise Technology, by Adamson and Kennedy: "The legend of Clive Sinclair is almost unparalleled in recent times. Known affectionately as 'Uncle Clive' to millions of home computer buffs, many of whom broke their teeth on the Sinclair range of micros..."

On top of his other problems now he faces product liability suits for dental bills

**WE WANT YOU!**

# PLAYERS



**THE PLAYERS TEAM ARE OUT LOOKING FOR  
YOU!**

**CAN YOU WRITE COMMERCIAL QUALITY  
GAMES IN MACHINE CODE?**

Write in Strictest Confidence to:  
RICHARD PAUL JONES  
PLAYERS SOFTWARE, CALLEVA PARK  
ALDERMASTON  
BERKS. RG7 4QW



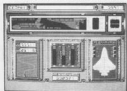


Karate Kid II

## Software Hotlines

YOU'VE heard of MUD, haven't you? That's it, the Multi User Dungeon, that on-line multi-player adventure which 870-odd people are subscribing to. Well here's some great news for the shy amongst you... or the plain anti-social. Soon you'll be able to play a version of MUD on your home micro, all alone and off-line. Called *Micro MUD*, and initially for the Commodore 64, it contains all the major features of the Land of MUD, which should be a great help for anyone planning to join the on-line version.

"MUD, like all multi-player



Space Station

games, is all a matter of speed - he who gets to the treasure first," said Simon Dally of **MUSE**. "Micro MUD is a way of learning your way around MUD off-line."

Written by MUD enthusiast Jon Stuart, the game features 'intelligent mobiles', including analogues of such infamous MUD characters as Jez the Wizard. "Jon spent over a year compressing the game into a single user version,"

continued Simon. "At first I was very sceptical about whether it could be done, but it's turned out well."

**Mosaic** will be publishing the program in this country early in the New Year, initially on Commodore disc only, but Amstrad disc versions are planned. No price has been set, as yet.

Talking of MUD, the system is currently on alpha-test on the American network **CompuServe**. The name 'MUD' is a little too obscure for those 250,000 delicate minds apparently, so they're calling it 'British Legends'. Right on **CompuServe**.

If you're interested in joining the British on-line version MUD packs, including your first three hours' play free, are available for £4.95 by calling **MUSE** on (voice line) 01-608 1137. And if you want to try it for now, dial 01-998 8899 (1200/75) using the logon 'MUDGUEST' and the password 'PROSPECT'. That'll give you a six minute taster.

What? UK originated ST software from **Microdeal**? 'Tis true. **Microdeal** is set to launch two ST programs, *Karate Kid II* and *Space Shuttle* (see screen shots below). *KK II* is, of course, a film tie-in - although exactly how many ST owners have seen that movie - or would want to - is open to question.

But the graphics look impressive so the title may well give **System 3's** *International Karate* on the ST a run for its money.

*Karate Kid II* and *Space Shuttle*, both priced £24.95, are due out mid-November.

**PSS MD** Gary Mays describes himself and programmer Mike Simpson as optimists.

You can put your own interpretations on that, but whatever, expect to see *Heroquest*, the follow-up to *Swords and Sorcery*, hitting the streets well before Christmas on the Spectrum.

Having surveyed 1000 purchasers of *S&S Mk I*, **PSS** have taken on board what people liked and disliked about the game (largely considered a flawed masterpiece) and the resulting program has a larger playing area, bigger graphics and is generally "more accessible". More details as they come in.



Colour of Magic

That amorphous corporate entity **Argus Press Software** (the company with more labels than Heinz) is

coming up with some pretty interesting goodies in the run up to the festive season, including yet another label, called **Grand Slam**.

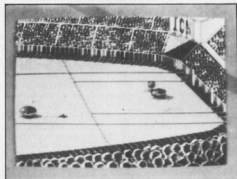
Primarily set up for sports simulations and the like, the first release will be *Peter Shilton's Handball Maradona*, out next month at £6.99. Some golden oldies such as *Alien* and *American Football* will be turning up on the **Bug Byte** label at £2.99, and **A&F** will continue where **CRL's Room 10** left off in the current 'futuristic games' front with *Xeno*. Computer penny football it may be, but it's great. With SDI in the news, you could try out *Defcom* - yup it's those aliens invading again.

Read the book - *The Colour of Magic*. Written by the semi-visionary Terry Pratchett (out in Corgi paperback), it's a real antidote to Tolkienism. The adventure by **Delta 4** via **Pirhana** promises to be good too, if the original is anything to go by.

Lastly, what's going on at **Telecomsoft**? **Odin** appears to have blown the release date for a game called *The Plot* (Nov 5 and all that). After six months plus of development time, **Torus** (for **Firebird**) has got precisely nowhere with the **Hive** and **Rainbird** is planning to release a game called *Deplete*, where you take a Cobra Mk 3 with mining lasers, millions of credits, etc, and must lose them.

Got that?

John Cook



Xeno

## HiSoft C'zes chess opportunity

If your chess playing isn't up to scratch, HiSoft's *SeaChess* could be the program you're looking for. It's a full-function chess program for the Amstrad CPC6128 and PCW machines, and is written in HiSoft C. The difference between this and other chess programs is, however, that the source code is included on the disc, and the program comes with a manual covering the theory and algorithms of chess programming.

Anyone wishing to rewrite the game can therefore do so with the aid of HiSoft C. *SeaChess* is £19.95, while C is £39.95.

The company has also released *Forth* for Amstrad's CP/M machines at £19.95 and a Basic compiler for the Spectrum (48K, 128K and Plus 2) for £15.95.

Details from HiSoft, The Old School, Greenfield, Bedford MK45 5DE. Tel: 0525 718181.

## Gilsoft launches son of Quill

QUILL developer Gilsoft has produced a new adventure writing system, *The Profes-*

sional Adventure Writer, which features a powerful text parser, facilities to create pseudo intelligent characters and text compression routines.

The first versions of the system will be available for the Spectrum in November, and will be followed by implementations on the 64, Amstrad CPC, PC and Amstrad PCW. It costs £22.95.

Gilsoft has also released *The Press*, a text compressor for the Quill, at £6.95, and has reduced prices on the Quill and *Illustrator* to £8.95 each, or £16.95 for both (£19.95 for the 64 and CPC disc versions).

Details from Gilsoft, 2 Park Crescent, Barry, South Glamorgan CF6 8HD. Tel: 0446 732765.

## Opus goes for graphics on PC

OPUS has added IBM Enhanced Graphics models to its range of PC compatible machines. The new versions have an IBM EGA (Enhanced Graphics Adaptor) fitted as standard, and come with a higher resolution monitor.

The company bills the entry level machine (with single drive and 256K Ram) as "the first complete EGA computer



system to be offered for under £1,000" (it's £998 ex VAT, or £1,174 retail). It is not, however, much of a price breakthrough. Opus' EGA card costs £230 on its own, and has 256K Ram fitted. A top of the range EGA standard card from Interquadram or AST, with 640K of screen Ram fitted, costs around £300.

So the cost advantages of the Opus PC don't seem to have been transferred to its add-ons.

## Training aids launched by CSD

CSD is to produce a range of

"software starters" designed to be used as training aids for owners of IBM and compatible machines. The first product is the MSDOS *Software Starter*, which costs £19.95.

The package consists of a tutorial disc as a training guide, and audio aids explaining computer jargon.

Future products in the range will include tutorials covering specific database, word processing and spreadsheet packages.

Details from CSD, Unit B11 Armstrong Mall, Southwood Summit Centre, Southwood, Farnborough, Hampshire GU14 0NP. Tel: 0252 522200.

## Diary Dates

### OCTOBER

30-31 October  
**Hampshire Computer Fair**  
Guildhall, Southampton  
Details: Business computers.  
Price: Free entry by business registration.  
Organiser: Testwood Exhibitions, 0703 31557.

### NOVEMBER

1 November  
**Kent Dragon Show**  
Maidstone Methodist Hall, Brewer Street, Maidstone  
Details: Local Dragon show  
Prices: £1 adults, 50p children  
Organiser: Computape, 0621 772589

7-9 November  
**Electron and BBC Micro User Show**  
New Horticultural Hall, Greycoat Street, London SW1  
Details: Hardware, software and peripherals for the Electron, BBC micro

and Master series  
Prices: £3 adults, £2 children, £1 discount for advance booking  
Organiser: Database Exhibitions, 061-456 8835

8 November  
**UKEUG National Einstein Show**  
National Motor Cycle Museum, Birmingham  
Details: Einstein software and hardware.  
Price: Free  
Organiser: UKEUG, 07982 2399

15 November  
**Wales and West Computer Show**  
Central Hotel, Cardiff  
Details: All types of home computer and support  
Price: £1 adult, 50p children  
Organiser: Preston Exhibitions, 0658 880995

21-23 November  
**The Commodore Computer Show**  
Novotel, Hammersmith, London W6  
Details: Hardware, software and peripherals for the Commodore range of computers  
Price: £3 adults, £2 children, £1 discount for advance booking  
Organiser: Database Exhibitions, 061-456 8835

22 November  
**6809 Show**  
Old Halls of the Royal Horticultural Society  
Details: Show for the Dragon and Tandy Colour Computers  
Price: £2.50 adult, £1.75 children, reduction for advance purchase  
Organiser: Jenny Pope, Microdeal, 0726 68020

28-30 November  
**The Atari Christmas Show**  
New Horticultural Hall, Greycoat

Street, Westminster, London SW1  
Details: Hardware, software and peripherals for the Atari range of computers  
Price: £3 adult, £2 children, £1 discount for advance booking  
Organiser: Database Exhibitions, 061-456 8835

29 November  
**Wight Computing Fair**  
Ryde Town Hall, Ryde, IoW  
Details: Local show covering wide range of subjects  
Price: N/A  
Organiser: Wight Computing Users Group, 10 John Street, Ryde, Isle of Wight PO33 2PY

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

## Tatung saluted

Firstly, may I say that I am not a supporter of the 'bundled monitor'. I believe that users should have a choice as to whether they want to use a TV or a monitor. Having said that...

May I salute Tatung for its new Einstein 256. This includes a decent high definition colour monitor, unlike the Amstrad CPC 6128, whose monitor is no better than my Amstrad TV for 80 column work.

Tatung has also improved the connection between monitor and keyboard - there is only one lead.

The high definition monitor allows you to take advantage of the Einstein's superior graphics. However, I fear these will not be used by software houses as nowadays they release a game on several machines at once using (almost) common modes and conversions and hardly ever improved versions.

I believe the 256 will be caught in the vicious circle: no software - no sales; no sales - no software.

So please, software houses, support this machine - you would if it were Clive's baby!

Neil Olnor  
Doncaster

## Appalled by Amstrad

I am appalled by Amstrad's blanket ban on copiers, its unwarranted assumption that these products are used only for piracy and its claim that

these products are 'illegal' and shouldn't be marketed.

Obviously no-one concerned has ever worked in the mainframe computing field, even at college, otherwise they would know that, in professional computing at least, back-up copying is not just accepted, it is standard practice.

Magnetic media are not infallible (even if your disc/tape drive is clean and working properly, you could still spill coffee over your media or leave them too near a loudspeaker - I've had both these happen). There is nothing either immoral or illegal (Copyright Act 1956) about copying tapes which you have bought and paid for (or won, etc).

Of course it is illegal (it's piracy, in fact) to dispose of such copies, or to keep the copy and dispose of the original, or to copy programs borrowed from others; but this does not mean that there is anything illegal/immoral about copier software or hardware, and certainly not if used in the strictly intended fashion, for back-up copies only.

True, copiers could be used for an illegal purpose - but then, so could virtually anything else.

Curbing piracy by banning copiers is like curbing drunken driving by banning cars. If a true solution to this problem is needed, it should take the form of issuing software on compact disc or Rom cartridge, both of which are virtually indestructible, thus making back-up copying necessary.

Robert J Baker  
London SW4

**You're treading on dodgy ground by saying that there is nothing illegal/immoral in copying for one's own use. Look in the front of any book and you will find the message that the book must not be reproduced in electronic form - or similar wording - without the express permission of the publisher. The copyright law has been updated (1985) to bring computer software into line with the written word.**

**The points you make all hinge on one thing - the permission of the manufacturer/publisher. Where software manuals suggest you make a back-up copy - as with many disc programs - then you have permission to do so. The publishers will not then put anything in your way in the form of protection to prevent you doing so. If there is no such rider with the package then no permission has been granted.**

**But copying devices are frequently designed to help you get round protection routines - there would be no point in them existing if they didn't. Nor do they come with endorsements from software companies stating that with the copier you may now reproduce their programs.**

**The argument really lies with the software companies as to whether you should be allowed to make back-up copies - the question of third party copying devices is a fringe issue.**

## Check the Checksum

I read with interest S Hoel's letter in *Popular*, October 9. I like his/her solution, but I must disagree concerning the checksum.

The checksum is at bytes 67 and 68, not 66 and 67 as stated, and it is a checksum of bytes 0 to 66 of the header. It has nothing to do with the contents of the file. This checksum is used by Amsdos to check if a header exists.

Indeed, it is this checksum, or rather the lack of one in .Com files which caused S Hoel's problem in the first place.

Another (better?) solution to the problem of loading .Com files under Amsdos is to read the file in one character at a time by repeatedly calling *Cas in Char &BC80*. The following assembler listing illustrates how this is done.

Incidentally, if the file is loaded to its correct address at first, the correct default load address will be written to the header when the file is saved.

```
WHERE: EQU *2000; specify your own
      ; load address
LD B, 12      ; length of the
              ; name
LD HL, NAME   ; address of the
              ; name
LD DE, BUFFER ; address of a 2K
              ; buffer
CALL #BC77    ; cas in open
LD HL, WHERE

READ: CALL #BC90 ; cas in char
LD (HL), A
INC HL
JR NC, FINISH ; carry false on
              ; EOF and error
JR READ

FINISH: CP #1A ; ignore CP/M EOF
              ; character
JR Z, READ
CALL #BC7A    ; cas in close
RET
```

## Puzzle

### PUZZLE No. 231

Membership of the Eccentric's Club is restricted to those of a particularly eccentric way of life. Four of the members have a peculiar eccentricity which governs the days on which they will attend the club.

For example, Colonel Custard will only be found on Thursdays, while Professor Podd will only enter the club on dates which are exactly divisible by five. Similarly, Dr Dumkins is only present every eighth day (irrespective of the actual date), while Herr Klinker is there every day, but only if there is

an 'R' in the name of the month.

Now the club is open every day of the year, and it so happens that on December 25th 1986 all four members will be present (as this happens to be a day that falls on Dr Dumkins' eight-day cycle).

Can you say when next they will all be present on the same day?

### Solution to Puzzle No. 226

The minimum number of balls that must be removed is one. This is because if you remove a ball from box 1 and it is red, then the other ball must be white. Therefore box 3 contains

two reds because it cannot contain two whites, and box 2 therefore contains two whites.

This procedure can be carried out on any of the three boxes.

### Winner of Puzzle No. 226

The winner this week is Alan Northcott of Winkers, Berkshire, who will be receiving £10.

### Rules

The closing date for Puzzle No. 231 is November 17. Answers on a postcard, please.

NAME: DEFM COM": note the  
"TEST" four spaces  
in the name  
BUFFER: DEFS #800

Now save the file as normal.  
If anyone would like to know more about loading and saving files, I am currently covering this subject in WACCI, an Amstrad user club newsletter. I can put prospective members in touch with the secretary.

Alex Aird  
139 Bromford Road  
Hodge Hill  
Birmingham B36 8HR

## Help wanted

With reference to Andrew Bowman's letter regarding his experiments with his printer and Commodore 64 (*Popular*, September 18).

I have tried to adapt his routine to work on the Commodore Plus/4 with a Commodore MPS 803 printer, but without any success.

The problem is that I would like to use the routine along with the built-in 3+1 word processing software, to give my letters a better appearance. What I would need would be a small machine code program that could be kept in memory somewhere, and which could be activated with a Sys call before turning on the 3+1 word processor.

Can anyone help me in this matter?

Robert Miller  
Glasgow

## The £100 question

Could you produce a comparison chart for the Commodore 64 and 64c just to show what's supposed to make the 64c worth approximately £100 more?

I ask because not one magazine has given any hint as to the difference, if any, of this 64c from the 64. Certainly Commodore seems to be keeping extraordinarily quiet about it.

It's hilarious - when Amstrad bought the Sinclair Spectrum, did it also buy the infamous built-in 'delay period'?

E Le Marquand  
Jersey

For full information on the Commodore 64c package see *Popular Computing*

*Weekly*, October 16 for a report on the 64c Connoisseur's Compendium and what it contains. Also, look out for our series of buyer's guide supplements in November when we'll go into the Commodore range in some detail.

Put very briefly, though, in the £249 64c package, apart from the restyled 64 casing, is the Mouse and Cheese graphics package, plus an assortment of software: *Monopoly*, *Cluedo* and *Scrabble* from Leisure Genius, *Renaissance* and *Grand Master Chess* from Audiogenic.



"Our programmer's handling it right now"

## New Amstrad User Group

I would like to inform fellow *Popular Computing Weekly* readers of a new user group which I run for Amstrad computer users.

For a minimal subscription, members receive a bi-monthly newsletter, access to a public domain software library plus much, much, more.

If anyone is interested, could they please send me a stamp and I'll be happy to send them full details.

Gary Carter  
United Amstrad User Group  
1 Magnolia Close  
Fareham  
Hants

## The game goes on

Grand drama in the *Popular* vs *Colossus* chess tournament - *Colossus* has put you all in check in Game one. Now get out of that...

Actually it shouldn't pose too many problems, as you can see from the diagram. In Game two, the Readers' team, playing White, elected to move the knight from d4-b5. *Colossus* has opted to push out a pawn in reply.

Now we want your suggestions for the next moves. Send your entry, one for each game to *Popular Chess*, Unit 2, South Block, The Maltings, Sawbridgeworth, Herts, CM21 9PG, to arrive by November 5.

The moves gaining the most votes will be entered into each game, and *Colossus* will make its response. The next stage will be printed here in a fortnight's time.

## The prizes!

The person suggesting the greatest number of accepted moves by the end of each game will win a British Museum reproduction Arran chess set. Five more people - the most consistent entrants (whatever the quality of the suggestions) will win a copy of *Colossus Chess* from CDS.

## Potential winners

As the games progress, there are several people in contention for one of the prizes: **P C Robertson**; the **Woodview** collective (save the postage, Woodview, we can only accept one entry); **Michael Bradley**; **Kevin Barry**; and **Karl Hassell**.

But they can be overhauled. There's a long way to go yet and it's not too late to join in, so make your moves now.

## Game One

Game One - you play Black. Your move, please



- |           |        |
|-----------|--------|
| 1 Pe2-e4  | Pe7-e5 |
| 2 Ng1-f3  | Nb8-c6 |
| 3 Bf1-c4  | NG8-f6 |
| 4 Nf3-g5  | Pd7-d5 |
| 5 Pe4xd5  | Nc6-a5 |
| 6 Bc4-b5+ | ?      |

## Game Two

Game Two - you play White. Where do you go from here?



- |          |        |
|----------|--------|
| 1 Pe2-e4 | Pc7-c5 |
| 2 Ng1-f3 | Nb8-c6 |
| 3 Pd2-d4 | Pc5xd4 |
| 4 Nf3xd4 | Pe7-e5 |
| 5 Nd4-b5 | Pa7-a6 |
| 6        | ?      |

## New Spectrum User Group address

May I inform all members of the Spectrum Unemployed User Group that all correspondence should now be addressed to 4 Mandeville Road, Brompton, Huntingdon, Cambs PE18 8SB.

D Gray

## Send in the books

We are holding a Christmas Bazaar on Novem-

ber 15, 1986, in aid of the mentally handicapped.

We are the parents committee attached to an adult training centre, and we like to try to raise enough money to send them on various holidays each year.

We were wondering if any of your readers have any books they could donate to us to sell at our bazaar.

We will collect any books ourselves - within a reasonable distance!

J Hales  
Nason-Waters Association  
7 Minister Way  
Hornchurch  
Essex RM11 3TH

# Evesham Micros

## PRINTER OFFERS

Check out these offers on top quality printers. All the models offered are substantially reduced from the normal high street prices. Prices are fully inclusive of VAT, delivery and lead to suit any computer with electronics parallel printer port, eg. Amstrad, BBC, Einstein, Atari ST, Oric, Dragon, IBM PC or compatible, Memotech or MSX. For the IBM 64/128 we supply a user port electronics cable. For Spectrum or QL owners an appropriate interface is supplied for an extra £26.00. For 5-bit Atari models an interface is supplied for an extra £30.00. If you require a detailed print sample of any model please send a S.A.E. stating your requirements. Delivery is by insured receipted delivery and orders are despatched the next working day after receipt, provided we have stock.

### PANASONIC KXP 1080

Now an even better price for this popular printer. A huge number of print options can be achieved, the switch selectable NLO being available in all models except sub/supercr. The quality of the NLO is far better than other similarly priced printers. Features include 100 cps draft mode, 20 cps NLO, friction and tractor feed, Epson compatibility and easy change long life ribbon.

**ONLY £179.95**

### MICRO P. MP165

The best NLO of any printer in the price range? Most people who see it think so. This printer has proved very, very popular over the last year and even more so at this super competitive price. An unusually high draft speed of 165 cps and its superb switch selectable NLO at 35 cps make this the class winner for performance per pound. Standard features include friction and tractor feed, 2K buffer, Epson compatibility, quiet operation and full graphics capability. Must be the highest spec available for the price.

**ONLY £219.95**

### STAR NL10

New high specification printer just released. All the usual features PLUS easy front panel selection of most modes, semi-automatic, single sheet feed, double and quad height characters AND plug in interface cartridges. Choose between standard centronics parallel, IBM, or Commodore. Ideal for Commodore owners who want the convenience of a CMB ready printer but may wish to change later, just buy a new interface cartridge for £39.00. When reviewing this model in a group test with the Epson LX80, Citizen MSP-10E and others, What Micro magazine referred to it as "the Rolls-Royce of these printers". A single sheet feeder is available for £63.00.

**OUR PRICE: ONLY £259.00**  
(state which cartridge required)

### JUKI 6100

A superb DAISYWHEEL printer, this model provides the highest quality print that only a daisywheel can provide. Print speed is 20 cps and the daisywheel itself is of the common Triumph Adler type. Ribbons are of the cheap and easily obtainable IBM selective variety.

**ONLY £289.00**

### MICRO P. MP200

A brand new very high specification dot matrix printer which will print in draft mode at 200 cps and NLO at 40 cps. Additional font cartridges are available to vary the print style. Most functions can be accessed from the front panel as well as through codes. Another high spec feature is its 8K buffer. It is Epson compatible and has full graphics ability.

**ONLY £299.00**

## HARDWARE SPECIALS

### ATARI ST

1040 STF Mono £799.00 520 STM c/w SF354 £24.95  
1040 STF Colour £999.00 disc drive £449.00  
(These prices include VAT and "The Pawn" F.O.C.)

### LIMITED OFFER

Complete brand new CBM 64 circuit boards. Repair your own '64, upgrade your VIC-20 or keep as a spare £45.00

CBM 1541C Disk drive £189.95 CBM 64 power pack £24.95  
CBM MCS801 Colour printer £199.95 CMB compatible data rec. £29.95  
CBM 64C commensur's pack, c/w mouse, tape deck, s/ware etc. £239.95

**ALL OFFERS SUBJECT TO AVAILABILITY**

All prices include P&P and VAT. Send cheque, Postal Order or Credit Card No. Credit Card order accepted by phone. Callers welcome. Wide range of goods stocked. Trade enquiries welcome. European orders send price as advertised. Outside Europe £2.00 for airmail. Mail order to Evesham Shop please.

**EVESHAM MICROS**  
BRIDGE STREET, EVESHAM,  
WORCS WR11 4RY.  
Tel: 0366 41989

**MICRO CENTRE**  
1756 PERSHORE ROAD,  
COTTERIDGE, BIRMINGHAM.  
Tel: 021-458 4564



## WALES AND THE WEST COMPUTER SHOW

### Saturday 15th November 1986

Central Hotel, Cardiff  
10.00 a.m. - 6.00 p.m.  
Admission: £1.00  
Children 50p

Come to the biggest show ever held  
in South Wales for home Computers

Over 40 stands

Bargains in Software, Joysticks,  
Printers, Computers and all the latest  
'add-ons'

*This is the only Show for all makes of  
Computers*

**You can't afford to miss it**

Preston Exhibitions, Kings Hall Court, St. Brides Major, Mid Glam.  
Tel: Southerndown 880 965 (24 hours)

# NEVIS



since 1970

**ALL DISCS TESTED INDIVIDUALLY  
100% GUARANTEED**

5 1/4"	S/S DD	10'S	£8.00
	D/S DD 96TPI	10'S	£8.50

**FREE LIBRARY BOX WITH 10'S  
V.A.T. AND POST/PACK, INCLUDED**

## BULK PURCHASE DISKS

		50	100	250
5 1/4"	S/S DD	£27.50	£50.00	£120.00
	D/S DD (96)	£32.50	£60.00	£145.00
3 1/2"	S/S DD	10'S	£15.95	
	D/S DD	10'S	£19.95	
3"	CF2	10'S	£29.95	

**NEVIS RECORDS LTD.**  
76 MUSWELL HILL ROAD  
LONDON N10. 01-883 7656





# Looking through the Windos

**W**ith the increasing popularity of WIMP (Window, Icon, Mouse Programs) on a wide range of home computers, it's great to see a simple-to-use utility which makes the techniques available to Spectrum programmers using Basic.

*Windos 2* comes with two demo programs, *Ike* and *Doodle*. The first is an icon and character designer, the second a graphics package. Both run using the *Windos* system, and so act both as demos and useful utilities in their own right.

*Windos 2* is 10½K long, and can be located in any convenient memory space, leaving areas clear for your own program plus any necessary character sets and so on. *Windos* commands are accessed using *LPrint* statements, which has the side effect of disabling the Spectrum printer routines. Any screen displays you want printed must be saved out and printed separately, although there are alternative solutions which programmer Ian Briscoe is working on.

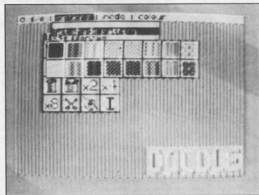
The *Windos* environment looks very much like GEM, with menu headings appearing at the top of the screen, options appearing in inverse print as you move the cursor over them, and 3-D shading effects making the windows appear very smart and solid. As usual, a pull-down menu snaps up when you move the

cursor off it, and the windows open and close themselves very stylishly.

Writing a WIMP program – or, more correctly, a WJP program, since *Windos* uses a joystick rather than a mouse – requires a rethink in your approach to Basic. It seems to be largely a matter of forward planning, knowing exactly what options you want to present the user and how they can be best grouped into menus.

Using either Basic or machine code, *Windos* can be used to place windows at any pixel position on the screen, although the problems of attribute scrolling limit the possible attribute positions to 32. Working in Basic, all calls to *Windos* are made using *Chr\$* commands which are used to set the current window number, define its size, define character sizes, access banks of icons, define shading patterns and control the cursor. There are escape codes which set more permanent options such as memory locations, standard colours, character spacing, wrap-around and icon bank address.

To store information about characters and icons, *Windos* uses a *CIA* – not, as the manual explains, some computerised secret service but a Character Information Area. This is 512 bytes long and so can store 96x4 byte character definitions. Using the *Ike* utility you can redefine these characters, up to a size of



Graphics options with *Windos' Doodle*

24x24 pixels, although *Windos* itself supports characters up to 255x191 pixels.

*Ike* and *Doodle* are very good examples of the results you can achieve with *Windos* (and a good deal of practice!). *Ike* allows you to create, group and save icon and character files, while *Doodle* is a graphics package which, despite the slow speed of the drawing cursor, has many of the features of advanced packages like Rainbird's *Art Studio*, such as selectable fill patterns, brushes, magnify, text, colours and so forth.

Bear in mind that *Ike* and *Doodle* are written in Basic using the *Windos* machine code system calls, then imagine what you could achieve if the whole package had had the speed of machine code.

*Windos 2* is described as

"the bare bones of a system" which will eventually include machine code versions of *Ike* and *Doodle*, a microdrive front-end emulating GEM, a mouse driver, a Spectrum 128K version, and more. It certainly represents value for money, with a clear manual, a frank assessment of its few limitations and an invitation to contact the author with problems or suggestions. *Windos 2* can be recommended for programmers who are prepared to invest some effort to make their programs look state-of-the-art.

Chris Jenkins

**Program *Windos 2 Micro***  
Spectrum Price £12.00  
**Supplier** Windosoft, 32  
York Road, Maidstone,  
Kent ME15 7QY.

# Keeping in touch with Newfile

**N**ewfile has been covered in *Popular* at least twice already under its CP/M guises of Saxxon's *Flexfile* and Amsoft's *Microfile* so I will not go into great detail other than to remind you that it is a simple to use, fast and reasonably powerful database of the cardboard type.

It is an ideal first database for those who want to test the water, or who only want to run something simple such as a mail merge address list, and has some strengths that may make it attractive even to

experienced users. The selection options are really very good, offering multiple *And/Or* criteria for finding the data you want and many ready made data file templates are available covering diverse applications from estate agents to pig farming. Conversely it puts restrictive limits on the length of key fields.

The good news about this PC version is that the much maligned manual has been completely re-written and vastly improved. There is also a clever interactive tutorial on the disc which takes you

through the program.

Most useful of all, the program has been made background memory resident (ie, once loaded you can take the program disc out and replace it with something else) which not only means that it is much easier to use on a one drive machine but it also has the ability to sit there, invisible to any other program you are running, until you press a certain key combination.

Instantly the screen changes to *Newfile* ready for you to look up names and addresses, stock lists, house

prices or how the pigs are doing down on the farm. Suddenly a comparatively ordinary database is transformed into an essential utility adding a powerful new dimension to your spreadsheet, word processor or whatever.

Tony Kendle

**Program *Newfile Micro***  
IBM PC or compatible  
Price £49.95 **Supplier**  
Newstar Software, 200  
North Service Road, Brentwood, Essex.

## How to digitise on your Atari ST for £300 or more

*Haba's video digitiser is a box of electronics which takes a video signal (not an RF one) and turns it into a computer display. This display can be manipulated to make it into a suitable form for incorporating into, say, a desktop publishing package or a word processor to produce quality accompanying illustrations.*

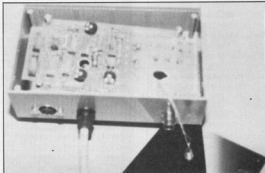
The Haba Video Digitizer is not in fact made by Haba, rather it is imported from the Austrian company, Print Technik, the same firm, incidentally, which made a similar product for the Commodore 64.

After removing the packaging, box being too strong a word for it, the systems components are revealed. These consist of the digitiser box itself, a connecting lead to the ST's parallel printer port, a power supply and lead, a disc containing the software and a cheaply produced instruction manual. Conspicuous by its absence is a video lead with BNC plugs to connect the digitiser to the video source. So, after paying £299 you'll have to fork out for that if you haven't got one. The video source can be a video recorder (displaying a still frame) or video camera. Whether the source is in colour or monochrome, it matters not, as the digitiser only produces monochrome displays.

Connecting everything up is easy enough, the only problems come from the length of lead available and how close you can get your video source, a video recorder in the case of this review. Once everything is plugged in and the unit is switched on, a red LED confirming the fact, then it's time to boot up the software.

The first notable thing about the software is that the ST must be in either low (320 by 200 pixels) or high resolution mode. As the resolution of the image that the software produces is 512 by 256 you can see that this image will be

*"Once an image has been digitised, it can be saved (for re-loading into the program later) and takes up 65K of disc space. Or it can be saved in a Neochrome/Doodle format for art programs"*



degraded in low resolution mode. However, there is a way around this, but at a cost.

Once loaded a screen with drop down menus is displayed. These are *Desk*, *File*, *Options* and *PRN-Param*. Assuming that your video source is producing its still image then digitising is extremely easy.

Simply access the *Options* menu and point and click on the digitise option. If your video source remains still for ten seconds or so, then the digitised image appears on the screen. Once an image has been digitised then it can be manipu-

lated in a number of ways.

One of these is to alter the number of scan lines which were read from the video signal. The default is 256 but it can be changed up to 625. Now, if you're using the computer in low resolution mode and you alter this value you get a better defined image. But, and this is the price, the image is correspondingly smaller, usually a quarter of normal size.

Other options include the zoom function allowing you to zoom into a defined area and expand this to a full screen display.

Invert gives you an image resembling a photographic negative, which can be useful for special effects.

Mirror simply gives a mirror image of the current display.

Look up allows you to assign any of the ST's 512 colours to the sixteen levels of grey used in the digitising process.

The final option on this menu is to print out the digitised picture according to the parameters set up in the *PRN-Param* menu.

Once an image has been digitised it can be saved in this format (for reloading into the program later) and takes up 65K of disc space. Or, it

can be saved in a *Neochrome/Doodle* format for loading into those art programs and manipulation. Also present on the disc are programs to convert *Neochrome* screens to *Degas* format and vice versa.

As can be seen from the accompanying low resolution pictures, the finished image is acceptable, while in high resolution the results are substantially better. The Haba Digitizer does the job quickly and painlessly and my only complaints, which are directly related, are about the packaging and the price. The Commodore 64 digitiser was considered pricey at around £80, but the ST's price tag of almost £300 can only be considered as outrageous.

Duncan Evans

**Product Haba Video Digitizer Price**  
£299.95 **Supplier** Haba Systems Ltd, Pier Road, North Feltham Trading Estate, Feltham, Middlesex TW14 0TT.



will offer Royalties or outright payments for your best games programs

PROGRAMS FOR:  
COMMODORE 64/128  
COMMODORE C16/PLUS 4  
AMSTRAD 664/464  
SPECTRUM 48K/128K  
ATARI - 8 BITS/520ST/1040ST  
COMMODORE - AMIGA  
M.S.X.  
I.B.M.  
ELECTRON/BBC  
+ ALL OTHER HOME COMPUTERS

MIDAS MARKETING LIMITED  
35 West Hill, Dartford, Kent.  
Tel: 0322-92513/92518  
Contact: Paul Godden-Wood

PDQL

49 FREDERICK STREET  
BIRMINGHAM B1 3HN  
021-233 3042

Make the Most of your QL for your home or business use

#### INTERACTIVE ARCHIVE TUTORIAL

A necessary adjunct to understand and maximise the standard Archive ..... £21

#### ARCHIVE SCREEN DESIGNER

More commands; more flexibility; more useful ..... £15

#### PLUS

ARCHIVE DATABASE RECOVERY ..... £20  
MAILMERGE De-Luxe ..... £14  
NAME & ADDRESS Standard ..... £18  
NAME & ADDRESS Run Time Extension ..... £18  
PDQ ACCOUNTS ..... £25  
CHASE UP and APPOINTMENTS DIARY ..... £40  
PAYROLL Full featured superfast ..... £70  
DATABASE ANALYSER ..... £7  
ARCHIVE SCREEN FORMAT PRINTER ..... £7  
And for existing CASH TRADER users the UPGRADE SUPERFAST version ..... £39

Easy to understand user instructions. All prices include VAT and postage within the UK. Payment with orders. Write now for full Program list.



New Horticultural Hall  
Westminster, London SW1



Organised by  
Database  
Exhibitions

## Don't miss the great Christmas bonanza of all that's new for the BBC Micro and Electron

Here's your big chance to catch up on all that's been happening recently in the rapidly changing world of the Electron and BBC Micro.

And there's so much new to excite and intrigue you... NEW programs from the fertile minds of Britain's leading software writers - games galore, plus a growing number of new packages for teachers and for industrial and business users.

NEW hardware add-ons that expand even more the power and versatility of your micro.

Electronics wizards regard both the Electron and the BBC Micro as a challenge to their ingenuity. Their latest creations on display at the Electron and BBC Micro User Show will astound and delight you!

#### Exhibitors who have reserved stands to date

Advanced Computer Products  
Advanced Memory Systems  
Amen  
Angus Specialist Publishing  
Bacrom  
BBC Publications  
Bedugroft  
Blue Ribbon Software  
Boothorpe ELP  
Cave Electronics  
Cenric  
Chesnut Software  
C J E Micros  
Computer Bookshops  
Computer Concepts  
Database Publications  
Dataphone  
Direct Disk Supplies

Disking  
Electro Music Research  
Fast Computing  
Genrop Publications  
GPD Systems  
Griffiths  
Griffin Computers  
Gutronics  
HCR Electronics  
Home & Business  
HSV Computer Services  
JB Software  
JCM Locksmiths  
Kansas City Systems  
Kirk Automation  
LCL Educational Software  
Logic Sales  
Mastermore (Distribution)

Micro Aid  
MicroLink  
Micro Media Computer Supplies  
Micronet 800  
Minerva  
Miniature Tool Company  
Modern House  
Morley Electronics  
Newlight  
Newrich Computer Services  
Opus Supplies  
Overbase  
Pinnacle Software  
Rams Computers  
Redwood Publishing  
Riddell Educational Media  
Rockford Products  
Shards Software

Slogger  
Softshop  
Solidex Technology  
Superior Software  
System  
Twiller Computers  
Tymesh  
Unicom Data Systems  
Viglen  
Viva Micro  
Vulcan Electronics  
Warford Electronics  
Wellserve  
Wigmore House  
Zorlout

Bring this coupon to the show to get 50p per person off the normal admission price of £3 adult, £2 children.

Valid for up to four people.

50p  
OFF

Electron & BBC Micro User Show  
Friday-Sunday, November 7-9  
New Horticultural Hall,  
Westminster, London SW1 POP



# Escape From Enthar 7 made easier

Tony Bridge brings you an overview of Robico's games stable

**R**obico Software will be well known to BBC owners for its range of adventures for that machine – the biggest and most expensive is *Enthar 7*. It's a disc-based story, with 450 locations, over 130K of text and 80 objects as well as a massive vocabulary. Because the game is so large, there is a lot of disc access going on, so responses are not always very fast; but the plot evolves in a tense and exciting way.

Like all Robico games, *Enthar 7* is well presented, with lots of options for things like Ramsave, mono or colour display, choice of drive for saving to and so on (and, I'm glad to say, the authors' powers of spelling holds up under the strain for most of the time). Like most modern adventures, the program boasts an advanced command interpreter so that long sentences and multiple commands may be used.

Robico always manages to generate a lot of atmosphere and in the present story this is evident from the very start. It's one of those beginnings where the player finds him or herself in a precarious position with only a certain number of moves before the dreaded *Another game Y/N?* is displayed.

In these circumstances, the only way to progress is to resign oneself to being killed off extremely regularly – actually after about every ten moves.

The plot has you, the player, somehow transmitted and marooned onboard an interplanetary space hopper whose orbit above the planet Enthar 7 is decaying while you are fumbling around attempting to escape.

So, moving around the ship attempting to find all its secrets will have you starting over and over again until all is revealed – but even then, it may be that

*"The plot has you somehow transmitted and marooned onboard an interplanetary space hopper whose orbit above the planet Enthar 7 is decaying"*

there is something that hasn't been found, or a location left unexplored.

In my haste to escape the doomed vessel, I didn't attempt to get through a metal grille in the engine room; unless it is purely there for atmosphere, it must surely have a reason for existence. Although the objects in this part of the adventure are for the most part hidden, they are rather easily found (I think!), and assuming that you survive long enough, the way off the ship is not too hard to fathom out. As a hint, the program can be rather too realistic in some ways – so that, at the very start, you must first type in *Stand Up*.

Once down on the planet's surface, the adventure becomes much more complex (yet another example of the "slow start" I like so much), with a large number of locations and objects to be examined and used in some way. Thanks to the disc access, descriptions are lengthy, and quite a good atmosphere of suspense is built up, even though the player seems to be completely alone in the command centre of *Enthar 7*, which is where the game proper begins.

*Enthar 7* will cost BBC+ and Master

owners £17.95 for the 2-disc 40-track version, or £16.95 for the 80-track single disc. Electron owners too can indulge for the same price, although there are one or two restrictions (no buffer save, for example). The authors are obviously keen on keeping a high standard with their stories, and I recommend this and the others from the same stable to any Beeb owners.

To recap on Robico's catalogue, *Enthar 7* is joined by the Rick Hanson trilogy of adventures, the final part of which includes a competition with the first prize of £100 for the first player to complete the game before April 1987. Also in the catalogue are several arcade games. Robico also runs a Software Club, which for £5.00 a year allows members a good discount on Robico software as well as other offers.

Finally, those who may need help on one of the adventures can now ask for a sheet of hints, clues and solutions, merely by writing (with proof of purchase) to Robico, 3 Fairland Close, Llantrisant, Mid Glamorgan, CF7 8QH.

A few months ago (March, in fact) I mentioned an adventure-creating program for the BBC, *Demonic World*. Then I thought that it was a pretty good effort, let down by a very condescending manual. That was about all, however, as the program itself was everything that the BBC D&D'er could wish for. Of course, it isn't really like D&D at all (what is, after all?), but it's a good attempt nevertheless.

As you can guess, *Demonic World* has been re-worked (particularly the manual, which is now back in the land of the living), and is now a very worthwhile investment for BBC owners who are looking for a bit of hack'n'slay on their machine. The program comes complete with an example game, *Entrance to Hades*, which will give you a very good idea of what can be achieved. Although the adventuring spectrum created by the utility is very narrow, being confined to battle with monsters with spells, exotic weapons and so on, users can create their own very complex "demonic world"; as I've said, D&D'ers will be familiar with much of what is going on here, with various levels of quite sophisticated spells, lots of monsters, characters such as clerics, fighters, magic-users and so on.

### Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand.

Fill in the coupon, explaining your prob-

lem, send it to us, and a fellow adventurer may be able to help.

Remember – the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

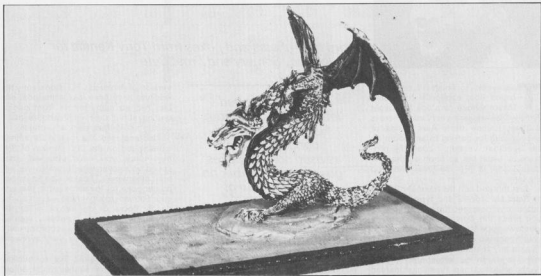
..... on (Micro) .....  
Adventure Problem .....  
Name .....  
Address .....

These characters also possess the usual requisites such as strength, intelligence and dexterity. Having defined all these parameters, then the locations and objects may be set up, with plenty of room for descriptions (limited only by

disc space, as disc access is used throughout the game).

The way the adventure works is, as always with a utility such as this, up to the imagination of the writer, but the problems will tend towards that of the

"how to tackle this pond full of deadly piranhas?" type. Very colourful, very playable (and very noisy too). *Demonic World* is available from Tael Adventures, PO Box 85c, Esher, Surrey KT10 9HF.



## HSV COMPUTER SERVICES LIMITED

### DISKETTES UNBRANDED LIFETIME GUARANTEE

Quantity	10	20	30	40	50	100
3 1/2" SS/DD 135 TPI	15.50	30.50	45.50	60.50	75.50	149.50
DS/DD 135 TPI	17.50	34.50	51.50	68.50	85.50	169.50
5 1/4" SS/DD 48 TPI	5.95	11.50	16.95	22.50	27.95	54.95
DS/DD 48 TPI	6.95	13.50	19.95	26.50	32.95	64.95
DS/QD 96 TPI	7.95	15.50	22.95	30.50	37.95	74.95

All disks supplied in cardboard boxes with write protect tabs, labels and envelopes and come with our no quibble money back or replacement guarantee.

**AMSTRAD**  
**AMSOFT/MAXELL 3" CF2 1 - £3.65**  
**5 - £17.50 10 - £31.95**



**CREDIT CARD HOT LINE**  
**(0256) 463507**



**ALL OUR PRICES INCLUDE CARRIAGE & VAT**  
**NO EXTRAS TO PAY!**

Also best prices for:  
Disk Boxes, Ribbons, Paper, Labels

**HSV COMPUTER SERVICES LIMITED**  
**40-42 New Market Square, Basingstoke, Hants RG21 1HS**

**HSV**

## IBM COMPATIBLE MACHINES

Bordwell PC BW34 640K RAM dual disk 360K 5 1/4" drives 12" green monitor  
Bundles MS DOS-GW basic  
RRP £688.85 WAVE £603.00 (a)

Bordwell PC BW36 Specifications as BW34 except single drive + 20Mb Winchester hard disk  
RRP £1148.85 WAVE £1025.00 (a)

## HARDWARE

	RRP	WAVE
Amstrad PCW 8256	£458.85	£409.00 (a)
Amstrad PCW 8512	£573.85	£513.00 (a)
Amstrad CPC 6128 green	£298.00	£267.00 (a)
Amstrad CPC 6128 colour	£399.00	£361.00 (a)
Amstrad CPC 464 green inc. £100 free s/w	£199.00	£178.00 (a)
Amstrad CPC 464 colour inc. £100 free s/w	£299.00	£267.00 (a)
2nd 3" Drive ONLY - PCW	£182.85	£136.00 (b)
2nd 3" Drive + 256K Ram upgrade - PCW	£232.85	£162.00 (b)
CPS 8256 Cent. - RS232 Interface - PCW	£68.94	£60.00 (c)
Alphacore 32/Times 20/40 printer-spec/CX81	£49.95	£18.95 (c)
BBC Master 128	£499.00	£430.00 (a)
Ferguson 37140A 14" Portable TV	£169.99	£152.00 (a)
Ferguson 1410D 14" Portable TV	£189.99	£160.00 (a)
New Monitor Style, black	£39.95	£70.00 (c)
IBM MPS801 Dot Matrix Printer inc. Tractor Feed	£169.99	£150.00 (a)
IBM 84C Pack New MODEL inc. S/W and Mouse	£249.99	£217.00 (a)

## SOFTWARE

IBM Easyfile Disc C-64	£60.00	£9.99 (d)
IBM Easyprint Disc C-64	£75.00	£9.99 (d)
IBM FuturFinance Disc C-64	£75.00	£9.99 (d)
Jewels of Darkness C-64/6128/PCW	£18.95	£14.25 (c)
Micro Simplex Disc C-64	£172.50	£96.00 (c)
Caxton Brainstorm 6128/PCW	£49.99	£38.00 (c)

All prices include VAT. Please add carriage indicated as follows: (a) £5.00  
(b) £4.00 (c) £3.00 (d) £2.00 (e) £1.00 (f) 50p. Despatched by return of post

## W.A.V.E. (mail order)

Walney Audio Video & Electrical  
53 Shearwater Crescent, Barrow-in-Furness,  
Cumbria LA14 3JP. Telephone: 0229 44753





## The spell is broken

More tips, cheats and pokes from Tony Kendle for *Spellbound*, *Sorcery* and *Frost Byte*

**T**his week, to finish off our *Spellbound* tips, especially for Adam Mayor whose own tips for *Knight Time* will be appearing very soon, here is a cheat routine from Alex Jones of Basingstoke for getting to any room on the Spectrum version. "Load the program as usual but as soon as the first Basic loader is in press *Break* and stop the tape.

"List this and edit the *Rand Ustr 26624* to *Rand Ustr 26643* and type *Run*. The program will load and run as normal but if you press the *Down* key when not in window mode the game will pause and your Spectrum will make a funny sound. Typing any number between 00 to 49 will take you to the corresponding room on the enclosed map. Pressing *X* instead of a number will return you to Basic – the game can be restarted by typing *Randomise Ustr 26643*.

"To survive rooms 15 and 18 you must have the glowing bottle or cast *Armourous Photonicus*. To survive E3 you must have cast *Fumatus Protecium*. If you want to go to F7 make sure you are standing at the very edge of the room or you will find that your game was shorter than expected even if you have infinite energy.

"I have also enclosed a room inventory.

- 00 The crystal ball
- 01 Four leaf clover, bottle of liquid
- 02 Runestone
- 06 Prism
- 08 Wand of command
- 09 Red crystal, ancient scroll
- 16 Javelin
- 17 Engraved candle, key
- 18 Pewter tankard
- 19 Mirror
- 20 Saxophone
- 21 Teletop key
- 22 Red herring, glowing bottle
- 23 Teletop pad
- 24 Instruction book
- 26 Book of shadows
- 27 Brick
- 28 Empty bottle
- 29 Gold bar, cannon ball
- 31 Blue crystal, white gold ring
- 33 Sticky bun
- 34 Book of runes, gold goblet
- 37 Tube of glue
- 40 Trumpet
- 41 Shield
- 42 Pocket laser

*"A long awaited letter has arrived from Hackers Unlimited concerning the revised sorcery pokes guaranteed to work on every version of Amstrad CPC"*

46 Broken talismen

49 Power pong plant

"Florin has the axe, Samsun the elf horn and the platform, Elrand the mlinr, the elf bread and Rosnar the willow rod and the fast blow fuse."

Now then I'm going to call a temporary halt to the proceedings, because a long awaited letter has arrived from Hackers Unlimited concerning the revised *Sorcery* pokes guaranteed to work on every

version of Amstrad CPC. Apparently the originals have been lost in the post and I've had so many letters from people writing about their whereabouts that I couldn't hold them back any longer.

Also enclosed is a routine for infinite extra speed on the CPC version of *Batman* (once you have obtained extra speed you never lose it) which we will print next week. There is also an infinite power poke for the same game that lets your *Batman* go anywhere – even on the deadly floors or on top of all of the monsters! You are, however, warned not to let *Batman* fall into a room he can't get out of or it will be very awkward indeed.

The Hackers would like to publicly welcome T A Shah to their midst, an old friend of this column who sent in the first ever Amstrad pokes. With this new and wonderful team we can apparently look forward to CPC pokes for *Boulder*, *Bombjack*, *Ghosts 'n' Goblins* and *Green Beret*! Let's hope it is not too long.

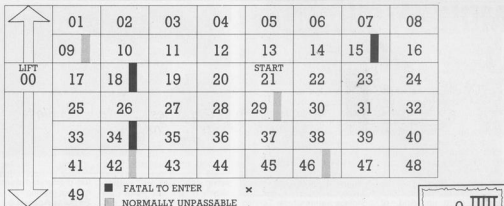
## Charts

### Top Twenty

- 1 (–) Fist II
- 2 (–) Infiltrator
- 3 (1) Paperboy
- 4 (17) Druid
- 5 (2) Trivial Pursuit
- 6 (4) Thrust
- 7 (9) Dragon's Lair
- 8 (5) Ninja Master
- 9 (13) Ghosts and Goblins
- 10 (6) Dan Dare
- 11 (10) Ollie and Lisa
- 12 (3) Lightforce
- 13 (8) 1942
- 14 (–) Sanxion
- 15 (–) Strike Force Harrier
- 16 (14) ACE
- 17 (–) Leaderboard
- 18 (7) Go for Gold
- 19 (–) Computer Hits Vol 3
- 20 (11) Green Beret

- Melbourne House
- Mindscape/US Gold
- Elite
- Firebird
- Domark
- Firebird
- Software Projects
- Firebird
- Elite
- Virgin
- Firebird
- Faster Than Light
- Elite
- Thalamus
- Mirrorsoft
- Cascade
- Access/US Gold
- Americana
- Beau Jolly
- Imagine

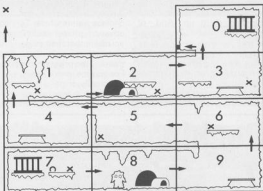
All figures compiled by Gallup/Microscope



Finally, this week, MicroGen has sent us this map of the first level of its latest title, *Frost Byte*. Watch this space for more hints and tips on *Frost Byte*.

### Position of objects in each room

Arrow indicates where the exit is on each screen



## TROWBRIDGE COMPUTER SHACK

# ATARI ST

## YOUR SPECIALIST DEALER

**FOR**

## WEST OF ENGLAND

**FULL RANGE OF  
ST SOFTWARE,  
PERIPHERALS,  
IN FACT  
EVERYTHING FOR THE  
ST**

8 Timbrell Street

Trowbridge, Wiltshire. Tel: (02214 67299)

PRESTEL MBX NUMBER 221467299

## ANCIENT &amp; MODERN

Unit 111 (Rear), Washington Road, West Wilts Trading Estate, Westbury, Wilt

FRANCHISE	2005 RANK	2004 RANK	2003 RANK	2002 RANK	2001 RANK	2000 RANK	1999 RANK	1998 RANK	1997 RANK	1996 RANK	1995 RANK	1994 RANK	1993 RANK	1992 RANK	1991 RANK	1990 RANK	1989 RANK	1988 RANK	1987 RANK	1986 RANK	1985 RANK	1984 RANK	1983 RANK	1982 RANK	1981 RANK	1980 RANK	1979 RANK	1978 RANK	1977 RANK	1976 RANK	1975 RANK	1974 RANK	1973 RANK	1972 RANK	1971 RANK	1970 RANK	1969 RANK	1968 RANK	1967 RANK	1966 RANK	1965 RANK	1964 RANK	1963 RANK	1962 RANK	1961 RANK	1960 RANK	1959 RANK	1958 RANK	1957 RANK	1956 RANK	1955 RANK	1954 RANK	1953 RANK	1952 RANK	1951 RANK	1950 RANK	1949 RANK	1948 RANK	1947 RANK	1946 RANK	1945 RANK	1944 RANK	1943 RANK	1942 RANK	1941 RANK	1940 RANK	1939 RANK	1938 RANK	1937 RANK	1936 RANK	1935 RANK	1934 RANK	1933 RANK	1932 RANK	1931 RANK	1930 RANK	1929 RANK	1928 RANK	1927 RANK	1926 RANK	1925 RANK	1924 RANK	1923 RANK	1922 RANK	1921 RANK	1920 RANK	1919 RANK	1918 RANK	1917 RANK	1916 RANK	1915 RANK	1914 RANK	1913 RANK	1912 RANK	1911 RANK	1910 RANK	1909 RANK	1908 RANK	1907 RANK	1906 RANK	1905 RANK	1904 RANK	1903 RANK	1902 RANK	1901 RANK	1900 RANK	1899 RANK	1898 RANK	1897 RANK	1896 RANK	1895 RANK	1894 RANK	1893 RANK	1892 RANK	1891 RANK	1890 RANK	1889 RANK	1888 RANK	1887 RANK	1886 RANK	1885 RANK	1884 RANK	1883 RANK	1882 RANK	1881 RANK	1880 RANK	1879 RANK	1878 RANK	1877 RANK	1876 RANK	1875 RANK	1874 RANK	1873 RANK	1872 RANK	1871 RANK	1870 RANK	1869 RANK	1868 RANK	1867 RANK	1866 RANK	1865 RANK	1864 RANK	1863 RANK	1862 RANK	1861 RANK	1860 RANK	1859 RANK	1858 RANK	1857 RANK	1856 RANK	1855 RANK	1854 RANK	1853 RANK	1852 RANK	1851 RANK	1850 RANK	1849 RANK	1848 RANK	1847 RANK	1846 RANK	1845 RANK	1844 RANK	1843 RANK	1842 RANK	1841 RANK	1840 RANK	1839 RANK	1838 RANK	1837 RANK	1836 RANK	1835 RANK	1834 RANK	1833 RANK	1832 RANK	1831 RANK	1830 RANK	1829 RANK	1828 RANK	1827 RANK	1826 RANK	1825 RANK	1824 RANK	1823 RANK	1822 RANK	1821 RANK	1820 RANK	1819 RANK	1818 RANK	1817 RANK	1816 RANK	1815 RANK	1814 RANK	1813 RANK	1812 RANK	1811 RANK	1810 RANK	1809 RANK	1808 RANK	1807 RANK	1806 RANK	1805 RANK	1804 RANK	1803 RANK	1802 RANK	1801 RANK	1800 RANK	1799 RANK	1798 RANK	1797 RANK	1796 RANK	1795 RANK	1794 RANK	1793 RANK	1792 RANK	1791 RANK	1790 RANK	1789 RANK	1788 RANK	1787 RANK	1786 RANK	1785 RANK	1784 RANK	1783 RANK	1782 RANK	1781 RANK	1780 RANK	1779 RANK	1778 RANK	1777 RANK	1776 RANK	1775 RANK	1774 RANK	1773 RANK	1772 RANK	1771 RANK	1770 RANK	1769 RANK	1768 RANK	1767 RANK	1766 RANK	1765 RANK	1764 RANK	1763 RANK	1762 RANK	1761 RANK	1760 RANK	1759 RANK	1758 RANK	1757 RANK	1756 RANK	1755 RANK	1754 RANK	1753 RANK	1752 RANK	1751 RANK	1750 RANK	1749 RANK	1748 RANK	1747 RANK	1746 RANK	1745 RANK	1744 RANK	1743 RANK	1742 RANK	1741 RANK	1740 RANK	1739 RANK	1738 RANK	1737 RANK	1736 RANK	1735 RANK	1734 RANK	1733 RANK	1732 RANK	1731 RANK	1730 RANK	1729 RANK	1728 RANK	1727 RANK	1726 RANK	1725 RANK	1724 RANK	1723 RANK	1722 RANK	1721 RANK	1720 RANK	1719 RANK	1718 RANK	1717 RANK	1716 RANK	1715 RANK	1714 RANK	1713 RANK	1712 RANK	1711 RANK	1710 RANK	1709 RANK	1708 RANK	1707 RANK	1706 RANK	1705 RANK	1704 RANK	1703 RANK	1702 RANK	1701 RANK	1700 RANK	1699 RANK	1698 RANK	1697 RANK	1696 RANK	1695 RANK	1694 RANK	1693 RANK	1692 RANK	1691 RANK	1690 RANK	1689 RANK	1688 RANK	1687 RANK	1686 RANK	1685 RANK	1684 RANK	1683 RANK	1682 RANK	1681 RANK	1680 RANK	1679 RANK	1678 RANK	1677 RANK	1676 RANK	1675 RANK	1674 RANK	1673 RANK	1672 RANK	1671 RANK	1670 RANK	1669 RANK	1668 RANK	1667 RANK	1666 RANK	1665 RANK	1664 RANK	1663 RANK	1662 RANK	1661 RANK	1660 RANK	1659 RANK	1658 RANK	1657 RANK	1656 RANK	1655 RANK	1654 RANK	1653 RANK	1652 RANK	1651 RANK	1650 RANK	1649 RANK	1648 RANK	1647 RANK	1646 RANK	1645 RANK	1644 RANK	1643 RANK	1642 RANK	1641 RANK	1640 RANK	1639 RANK	1638 RANK	1637 RANK	1636 RANK	1635 RANK	1634 RANK	1633 RANK	1632 RANK	1631 RANK	1630 RANK	1629 RANK	1628 RANK	1627 RANK	1626 RANK	1625 RANK	1624 RANK	1623 RANK	1622 RANK	1621 RANK	1620 RANK	1619 RANK	1618 RANK	1617 RANK	1616 RANK	1615 RANK	1614 RANK	1613 RANK	1612 RANK	1611 RANK	1610 RANK	1609 RANK	1608 RANK	1607 RANK	1606 RANK	1605 RANK	1604 RANK	1603 RANK	1602 RANK	1601 RANK	1600 RANK	1599 RANK	1598 RANK	1597 RANK	1596 RANK	1595 RANK	1594 RANK	1593 RANK	1592 RANK	1591 RANK	1590 RANK	1589 RANK	1588 RANK	1587 RANK	1586 RANK	1585 RANK	1584 RANK	1583 RANK	1582 RANK	1581 RANK	1580 RANK	1579 RANK	1578 RANK	1577 RANK	1576 RANK	1575 RANK	1574 RANK	1573 RANK	1572 RANK	1571 RANK	1570 RANK	1569 RANK	1568 RANK	1567 RANK	1566 RANK	1565 RANK	1564 RANK	1563 RANK	1562 RANK	1561 RANK	1560 RANK	1559 RANK	1558 RANK	1557 RANK	1556 RANK	1555 RANK	1554 RANK	1553 RANK	1552 RANK	1551 RANK	1550 RANK	1549 RANK	1548 RANK	1547 RANK	1546 RANK	1545 RANK	1544 RANK	1543 RANK	1542 RANK	1541 RANK	1540 RANK	1539 RANK	1538 RANK	1537 RANK	1536 RANK	1535 RANK	1534 RANK	1533 RANK	1532 RANK	1531 RANK	1530 RANK	1529 RANK	1528 RANK	1527 RANK	1526 RANK	1525 RANK	1524 RANK	1523 RANK	1522 RANK	1521 RANK	1520 RANK	1519 RANK	1518 RANK	1517 RANK	1516 RANK	1515 RANK	1514 RANK	1513 RANK	1512 RANK	1511 RANK	1510 RANK	1509 RANK	1508 RANK	1507 RANK	1506 RANK	1505 RANK	1504 RANK	1503 RANK	1502 RANK	1501 RANK	1500 RANK	1499 RANK	1498 RANK	1497 RANK	1496 RANK	1495 RANK	1494 RANK	1493 RANK	1492 RANK	1491 RANK	1490 RANK	1489 RANK	1488 RANK	1487 RANK	1486 RANK	1485 RANK	1484 RANK	1483 RANK	1482 RANK	1481 RANK	1480 RANK	1479 RANK	1478 RANK	1477 RANK	1476 RANK	1475 RANK	1474 RANK	1473 RANK	1472 RANK	1471 RANK	1470 RANK	1469 RANK	1468 RANK	1467 RANK	1466 RANK	1465 RANK	1464 RANK	1463 RANK	1462 RANK	1461 RANK	1460 RANK	1459 RANK	1458 RANK	1457 RANK	1456 RANK	1455 RANK	1454 RANK	1453 RANK	1452 RANK	1451 RANK	1450 RANK	1449 RANK	1448 RANK	1447 RANK	1446 RANK	1445 RANK	1444 RANK	1443 RANK	1442 RANK	1441 RANK	1440 RANK	1439 RANK	1438 RANK	1437 RANK	1436 RANK	1435 RANK	1434 RANK	1433 RANK	1432 RANK	1431 RANK	1430 RANK	1429 RANK	1428 RANK	1427 RANK	1426 RANK	1425 RANK	1424 RANK	1423 RANK	1422 RANK	1421 RANK	1420 RANK	1419 RANK	1418 RANK	1417 RANK	1416 RANK	1415 RANK	1414 RANK	1413 RANK	1412 RANK	1411 RANK	1410 RANK	1409 RANK	1408 RANK	1407 RANK	1406 RANK	1405 RANK	1404 RANK	1403 RANK	1402 RANK	1401 RANK	1400 RANK	1399 RANK	1398 RANK	1397 RANK	1396 RANK	1395 RANK	1394 RANK	1393 RANK	1392 RANK	1391 RANK	1390 RANK	1389 RANK	1388 RANK	1387 RANK	1386 RANK	1385 RANK	1384 RANK	1383 RANK	1382 RANK	1381 RANK	1380 RANK	1379 RANK	1378 RANK	1377 RANK	1376 RANK	1375 RANK	1374 RANK	1373 RANK	1372 RANK	1371 RANK	1370 RANK	1369 RANK	1368 RANK	1367 RANK	1366 RANK	1365 RANK	1364 RANK	1363 RANK	1362 RANK	1361 RANK	1360 RANK	1359 RANK	1358 RANK	1357 RANK	1356 RANK	1355 RANK	1354 RANK	1353 RANK	1352 RANK	1351 RANK	1350 RANK	1349 RANK	1348 RANK	1347 RANK	1346 RANK	1345 RANK	1344 RANK	1343 RANK	1342 RANK	1341 RANK	1340 RANK	1339 RANK	1338 RANK	1337 RANK	1336 RANK	1335 RANK	1334 RANK	1333 RANK	1332 RANK	1331 RANK	1330 RANK	1329 RANK	1328 RANK	1327 RANK	1326 RANK	1325 RANK	1324 RANK	1323 RANK	1322 RANK	1321 RANK	1320 RANK	1319 RANK	1318 RANK	1317 RANK	1316 RANK	1315 RANK	1314 RANK	1313 RANK	1312 RANK	1311 RANK	1310 RANK	1309 RANK	1308 RANK	1307 RANK	1306 RANK	1305 RANK	1304 RANK	1303 RANK	1302 RANK	1301 RANK	1300 RANK	1299 RANK	1298 RANK	1297 RANK	1296 RANK	1295 RANK	1294 RANK	1293 RANK	1292 RANK	1291 RANK	1290 RANK	1289 RANK	1288 RANK	1287 RANK	1286 RANK	1285 RANK	1284 RANK	1283 RANK	1282 RANK	1281 RANK	1280 RANK	1279 RANK	1278 RANK	1277 RANK	1276 RANK	1275 RANK	1274 RANK	1273 RANK	1272 RANK	1271 RANK	1270 RANK	1269 RANK	1268 RANK	1267 RANK	1266 RANK	1265 RANK	1264 RANK	1263 RANK	1262 RANK	1261 RANK	1260 RANK	1259 RANK	1258 RANK	1257 RANK	1256 RANK	1255 RANK	1254 RANK	1253 RANK	1252 RANK	1251 RANK	1250 RANK	1249 RANK	1248 RANK	1247 RANK	1246 RANK	1245 RANK	1244 RANK	1243 RANK	1242 RANK	1241 RANK	1240 RANK	1239 RANK	1238 RANK	1237 RANK	1236 RANK	1235 RANK	1234 RANK	1233 RANK	1232 RANK	1231 RANK	1230 RANK	1229 RANK	1228 RANK	1227 RANK	1226 RANK	1225 RANK	1224 RANK	1223 RANK	1222 RANK	1221 RANK	1220 RANK	1219 RANK	1218 RANK	1217 RANK	1216 RANK	1215 RANK	1214 RANK	1213 RANK	1212 RANK	1211 RANK	1210 RANK	1209 RANK	1208 RANK	1207 RANK	1206 RANK	1205 RANK	1204 RANK	1203 RANK	1202 RANK	1201 RANK	1200 RANK	1199 RANK	1198 RANK	1197 RANK	1196 RANK	1195 RANK	1194 RANK	1193 RANK	1192 RANK	1191 RANK	1190 RANK	1189 RANK	1188 RANK	1187 RANK	1186 RANK	1185 RANK	1184 RANK	1183 RANK	1182 RANK	1181 RANK	1180 RANK	1179 RANK	1178 RANK	1177 RANK	1176 RANK	1175 RANK	1174 RANK	1173 RANK	1172 RANK	1171 RANK	1170 RANK	1169 RANK	1168 RANK	1167 RANK	1166 RANK	1165 RANK	1164 RANK	1163 RANK	1162 RANK	1161 RANK	1160 RANK	1159 RANK	1158 RANK	1157 RANK	1156 RANK	1155 RANK	1154 RANK	1153 RANK	1152 RANK	1151 RANK	1150 RANK	1149 RANK	1148 RANK	1147 RANK	1146 RANK	1145 RANK	1144 RANK	1143 RANK	1142 RANK	1141 RANK	1140 RANK	1139 RANK	1138 RANK	1137 RANK	1136 RANK	1135 RANK	1134 RANK	1133 RANK	1132 RANK	1131 RANK	1130 RANK	1129 RANK	1128 RANK	1127 RANK	1126 RANK	1125 RANK	1124 RANK	1123 RANK	1122 RANK	1121 RANK	1120 RANK	1119 RANK	1118 RANK	1117 RANK	1116 RANK	1115 RANK	1114 RANK	1113 RANK	1112 RANK	1111 RANK	1110 RANK	1109 RANK	1108 RANK	1107 RANK	1106 RANK	1105 RANK	1104 RANK	1103 RANK	1102 RANK	1101 RANK	1100 RANK	1099 RANK	1098 RANK	1097 RANK	1096 RANK	1095 RANK	1094 RANK	1093 RANK	1092 RANK	1091 RANK	1090 RANK	1089 RANK	1088 RANK	1087 RANK	1086 RANK	1085 RANK	1084 RANK	1083 RANK	1082 RANK	1081 RANK	1080 RANK	1079 RANK	1078 RANK	1077 RANK	1076 RANK	1075 RANK	1074 RANK	1073 RANK	1072 RANK	1071 RANK	1070 RANK	1069 RANK	1068 RANK	1067 RANK	1066 RANK	1065 RANK	1064 RANK	1063 RANK	1062 RANK	1061 RANK	1060 RANK	1059 RANK	1058 RANK	1057 RANK	1056 RANK	1055 RANK	1054 R
-----------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	-----------

Unit 111 (Rear), Washington Road, West Wilts Trading Estate, Westbury, Wilts.

**G-TEN LIMITED**

WE GUARANTEE BEST TITLES

AT DISCOUNT PRICES

[illegible]

Please send S.A.E. for full list - please specify machine. Please allow 2-14 days delivery. Mail order only. Please add 50p P. & P. per item (U.K./BPP only) - Overseas add £1 P. & P. per item. Please make cheques/postal orders payable to: G-Tee Limited.  
U.K./BPP orders sent to: G-Tee Limited, PH019027 (no stamp required, London E1 6BR).  
Overseas orders sent to: G-Tee Limited, Dept 001, Commerce House, 156-158 Commercial Street, London E1 6BR.

## Military disaster

Just when you thought it was safe to go back to the beachhead, CCS plots its battle-orders and tries to massacre the whole genre. A double tragedy because it's not yet another Napoleonic romp, but some World War One action in the region of the Dardanelles.

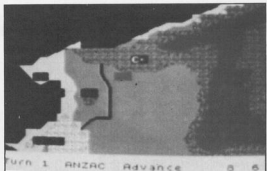
WW1 contains some interesting options, such as digging trenches and even tunnelling to within inches of the enemy fortifications, then blowing them up. And, of course, the Gallipoli campaign offers its own special challenge... try to do better than the allied generals, who gained little at the cost of many men.

Initial impressions of the game are good. The compre-

hensive rules suggest that this is going to be a carefully thought out simulation, with a good number of options. 128 owners even get their own version with optional battle sounds and an arcade sequence to assess battle modifiers. There's a big, scrolling map which is easy to read and cursor control.

Then you start to play. Even if you can put up with the somewhat erratic movement of the cursor, the apparently endless nature of the Turkish advance phase could make you think that their troops are crawling towards you. And then... the program crashes. For you the war is over!

Actually, it need not be all that final, because typing in *Run* has your troops marching



again, though still rather slowly. You can pick up where you left off, but be warned... there's more suspense waiting for the next crash than in trying to draw up a successful strategy.

Gallipoli was a military disaster. By dragging us back into the age of the well-bugged Basic simulation, CCS

has produced a disaster all of its own making.

**Popular Appeal ♦**

Paul Svyacarsky

**Program Gallipoli Micro**  
Spectrum 48K/128K  
Price £8.95 Supplier  
CCS, 14 Langton Way,  
London SE3 7TL

## Rockin' and rollin' down the trail

*Trailblazer* comes from the same programming stable as *Boulder*, and has lots of similarities while being much fast-

er and more exciting. Forget about the plot (which is pretty meaningless, anyway) - what you have is a cosmic roadway receding into the distance,

upon which sits an Amiga-like "bouncing ball". The game can be played either one player against the clock, two players against each other, or one player against a computer controlled opponent.

Like Activision's *Ballblazer*, the action is seen from two points of view, with two versions of the playing screen presented, one in each half of the screen. The challenge is to control your sphere as it hurtles along the cosmic causeway, avoiding black holes in the path (which cause you to take a tumble and a time penalty), using the blue squares to trampoline over gaps, the green squares to increase your speed, and the white squares to zoom into overdrive.

Red squares slow you down and purple ones stop

you dead, while in the later levels we are promised even more horrors, including the dreaded Cyan Zone in which all your joystick controls are reversed.

With a little pattern-matching exercise built in after every few levels, top class sound effects and effortlessly smooth scrolling, *Trailblazer* is maddeningly addictive - pardon the cliché - and proves once again that the simplest ideas are often the most successful. A biggie for sure.

**Popular Appeal ♦ ♦ ♦ ♦**

Chris Jenkins

**Program Trailblazer Micro**  
CBM 64 Price £9.95  
Supplier Gremlin Graphics,  
10 Carver Street, Sheffield  
S1 4FS



## Solving the puzzles of freedom

It's Manic Miner time again as Clement Droid, *The Last of the Free*, jumps about, runs and dodges nasty droids, collects objects and solves problems, and makes for the exit so he can warn humanity that his enemies are about to be our enemies. I'd advise old Clem to keep it

eyes shut as well so he doesn't have to look at the game's bland graphics.

So much for the plot. The large sprites mentioned on the inlay turn out to be medium sized and are well enough animated, as is Clement the droid. The backgrounds, containing pipes and various in-

distinguishable blocks are something else, though. They are, in fact, pathetic.

What separates *Last of the Free* from any other platform game is the puzzles which range from simple to complex and are spread over 55 different screens. Doors can be opened by having the key and

pressing '\*' (to use object) whilst other problems require the dropping of objects on or near to the obstacles.

**Popular Appeal ♦ ♦**

Duncan Evans

**Program Last of the Free Micro**  
BBC/Electron  
Price £7.95 Supplier  
Audiogenic Software Ltd,  
PO Box 88, Reading,  
Berkshire

## Darling Red Max

**B**illed as a sequel to *The Last V8*, and by the same author, David Darling, *Red Max* has you rudely awakened from cryogenic hibernation below the surface of the moon, and hurtling off on a motorbike – built using the last V8's engine – to shut down reactors and rescue your fellow hibernators before the galaxy blows itself to bits. Or something like that.

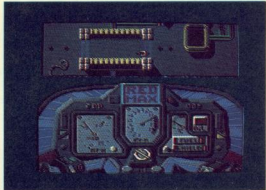
The moon has apparently been invaded by "renegade deathlords", who have laid 27 mines, encircled the city with a laser fence, and various other unspeakable acts.

Transferred to actual gameplay, this means piloting your character on the motorbike, riding over mines to defuse

them, disabling laser fences by riding over numbered switches before careering through them, and not crashing into other electric fences. This goes on over three levels.

The graphics are attractive, showing an aerial view of your course through the mined wilderness, although, as with all aerial views, some graphic representation of your character is lost. As for riding the bike itself, it's not too difficult, even if the brakes seem a bit dodgy.

As we've come to expect from the Darling stable, some great music has been commissioned from David Whittaker to complement the game. It's very Hubbardeque, which is not surprising



as the two are apparently friends, and it's well worth listening to in its own right.

There are plenty of companies punting out inferior products to this at full price – at £1.99 it's a giveaway.

**Popular Appeal** ♦♦♦♦  
Christina Erskine

**Program Red Max Micro**  
Commodore 64 **Price**  
£1.99 **Supplier** Code  
Masters, 1 Beaumont  
Business Centre, Beaumont  
Close, Banbury,  
Oxon OX16 7RT.

## Be Sir Galaheart

**A**s Sir Galaheart, it's your business to wander the highways, byways and motorways of this cursed country in search of the sacred firestone. To get that you'll need the enchanted crystals and to get them you'll need a lot of mapping, some dodging, a spot of shooting and the odd bit of bartering. It's almost as involved as real life.

Being a Firelord gives you a good pedigree though. You can trace your family tree right back through Odin's

*Robin of the Wood*.

It's also a great looking game, with a vast and varied area to investigate. There are some pretty neat sound effects, too!

But original this isn't... but it is a very nice variation on a classic game type.

**Popular Appeal** ♦♦♦♦  
Paul Svyarsky

**Program Firelord Micro**  
Spectrum 48K **Price**  
£8.95 **Supplier** Hewson,  
56B Milton Trading Estate,  
Abingdon, Oxon.



## Randomly generated killer sheep

**S**epulcri is a state of the art game. In play it may be highly derivative, with more than a smack of *Knight Lore*, *Alien 8* and *Batman*, but it is at least a near-perfect synthesis of randomly-generated title and randomly-generated plot.

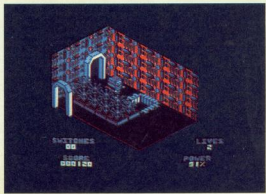
The plot, such as it is, is described in the inlay as an "implausible storyline" – you can say that again. The first Strategic Defence Initiative satellite is finally ready in the year 2075, but it's got a few bugs. You therefore have to control a miniaturised robot moving through the satellite's

circuitry, flipping dip switches and avoiding killer sheep.

As in *Batman*, jumping is crucial – a fraction out and you're dead, but it's curiously compelling, as you move slowly through the problems, solving them every third or fourth time. If it was an original it would be well worth the money.

**Popular Appeal** ♦♦♦♦  
John Lettice

**Program Sepulcri Micro**  
Amstrad CPC **Price** £8.95  
**Supplier** Ariolasoft, 68  
Long Acre, London WC2.





# POPULAR Computing WEEKLY

**SPECIAL**  
supplement  
1986  
Oct 30-Nov 5

## SINCLAIR SPECTRUM

### INSIDE

25

Home automation made simple with the Red Box system and Spectrum

29

A good program made better; a review of The Artist 2

30

Spectrum as PCW-basher? Looking at Saga's Compliment upgrade kit

32

Games explosion! 180, Uridium, Starglider, WAR and more...



37

Printer problem solver; Ram's Centronics unit with w/p software

**W**ith the release of the latest version, the Amstrad/Sinclair Spectrum Plus 2, this micro looks set to compete for a long time yet.

In this supplement we'll see just why the Spectrum has lasted as well as it has. Apart from the massive games support, with continuous improvements in quality shown by programs like *Uridium* and *Starglider*, there is a huge selection of utility and hardware products buy.

The **Red Box** and **RamPrint** interfaces go a long way to solving the perennial problems of controlling printers and household appliances; while the **Artist 2** package from Softtechnics shows that even the best Spectrum products can be improved to an amazing degree.

Despite the competition it looks as if the Spectrum will be holding its own while you still support it. ◀

## Learn to box clever

PATRICIA SAVAGE ON THE MOST INTELLIGENT SOLUTION TO THE HOME AUTOMATION PROBLEM

**W**hen home computers first became affordable, it didn't seem so important to justify your reason for buying one. It was enough that they were new and exciting. Later on, when the novelty had worn off, many justifications arose; word processing, accounts, games, whatever. One of the most commonly heard reasons for buying a computer was the ability it offered to control household devices; hence the rash of unfunny cartoons about micros putting the carpet out and sweeping the cat. The fact remains, though, that the complexity of interface devices and the soldering skill needed to make such add-ons work, meant that most people's plans to computerise their houses came to nothing.

Now it looks as if the idea is back with a bang, in a new form which offers easy, efficient control of domestic appliances without the need for either a degree in electronics or the ability to solder a joint.

The **Red Box** system works because it is an *intelligent* system. Rather than just

acting as simple on/off switches, requiring complex connections to your computer, the **Red Box** devices have their own built-in microprocessors which can be programmed to perform complex tasks by your computer, then left to get on with it.

Another revolutionary aspect of the **Red Boxes** is that they communicate with each other using the domestic mains lines. No more spaghetti wiring.

Like the versions for other home micros, the **Spectrum Red Box** system consists of three units; **Red Leader**, which runs the **Basic** program and controls the other units; **Red One**, a computer controlled mains socket with a

maximum load of 13 amps; and **Red Two**, an infra-red sensor best used for security applications. Appropriate connection leads for your computer are also enclosed. Since **Red Leader** is a 6502-based device with 16K ROM and 8K RAM, it is in effect a computer itself.

The programming language, **Red Basic**, is identical for all micros. Your micro is used simply to issue commands to **Red Leader**, which passes them on to the slave unit.

To install the units, **Red Leader** should be wall mounted and left permanently plugged in to the mains - power consumption is negligible. Loading the control program into the Spectrum and ▶

Device number	Device name	Status	On time	Off time	Duration	Time	Device type	Auxiliary
1	Red Control					21:36:51		
2	WHILL	ON	2030	0130			1	R
3	LAMP	ON					1	2
4	DOOR	OFF					1	4
5	WALL	OFF						

Enter Command:	(U)p	(D)own	(S)et
(N)ew	(E)rase	(R)epet	
(C)lock	(I)time	(F)offtime	
(L)oad	(G)o	(Q)uit	

Installed devices      Command summary

If you own a BBC Micro, Commodore 64 or Spectrum 48k/128k - you could have a totally automated home at your command.

It's time your computer grew up and realised its full potential - as something more than a data base, a word processor or an expensive toy for your kids. From now on, your home computer can do a lot more than play games.

The Red Boxes control system lets your computer earn its keep defending your home against intruders, acting as a round-the-clock security system, giving you control over any electrical appliance whether you are in, or out.

The Red Box starter system takes you right into the exciting world of home automation from as little as £129.

#### **Just plug in for a more efficient home.**

Simple to operate, it plugs straight into your home's ring main and needs no other wiring. You don't need any programming experience to operate it.

The system can control internal and external lighting, on/off switches and dimmers in different rooms in different sequence. It can activate washing machines, tumble driers, dishwashers, hi-fi, television, heaters - in fact, everything operating through your mains via a 13 amp plug.

#### **Prevent daylight robberies.**

Most burglaries happen during the day, so the Red Boxes control system works just as hard then as it does at night.

If an intruder enters your home, the Red Boxes control system will see him off sharply.

As soon as its sensor is disturbed, the alarm will raise the roof.

However more importantly this system can also deter people entering your home by creating an appearance of constant activity.

#### **Turn your home computer into a command terminal.**

The Red Box starter system comprises three red boxes. RED LEADER is a complete 6802 based microcomputer with 16 kbytes ROM, 8 kbytes RAM, peripheral controller with 2400 baud mains modem and host computer link, with an integrated power supply. Its powerful micro-processors turn your micro-computer into a command terminal. This is the heart of the system - its even sophisticated enough to recognise which type of computer you own!

RED ONE is a micro-processor controlled 13 amp mains outlet working under the supervision of Red Leader. With Red One at a socket you have power over domestic appliances and lights connected to that outlet.

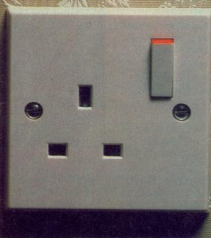
RED TWO is a complete micro-processor controlled movement detector which feeds back data to Red Leader via mains borne signals - raising the alarm on intruders as soon as they enter its heat seeking zone.

#### **Unique tamper-proof security.**

Our Red Boxes operate a secure communications protocol. Incorporating tamper-proof PIN codes. All 'slaves' - outlets, sensors, switches - are first introduced to Red Leader using their own secret 24 bit address. Secret keys are assigned to every device - lights, TV etc. known ONLY to you, and messages between devices are also encoded using random numbers to further secure the system.

No other Red Leader knows your slave codes; therefore no unauthorised person can interfere with the operation of your system.

# You already have a home automation network. Plug in for £129.



#### **Computer to computer communication.**

Communication is a vital aspect of our Red Boxes system. Controllers are not isolated from one another - they are connected with each other through the mains borne system and so communicate with each other and with Red Leader. If Red Two sends a message to Red Leader indicating an intruder, Red Leader responds by telling a switch unit to activate the alarm.

If you operate two home computers, they can communicate with each other through the system, enabling you to set them more complex tasks. And because Red Boxes have integral micro computers, this leaves your home micro free for normal use outside Red Boxes programming.

#### **The possibilities are endless.**

Our Red Boxes are ready for them. With humidity detectors, sensors or additional motors, this system can be used for weather monitoring, aerial irrigation, home brewing, greenhouse thermostat control, keyless access via electronic door locks, remote access

control via a telephone modem - even a robotic arm for performing simple mechanical tasks like tea making and shoe polishing. One day we might even invent one to iron shirts, why not. Our Project Manual at £9.95 describes a whole series of exciting applications.

#### **Trial run.**

For a FREE 14 day trial of the Red Boxes control system WITHOUT OBLIGATION complete the coupon and post to: Electronic Fulfillment Services Ltd., Chesterton Mill, French's Road, Cambridge CB4 3NP.

Your Red Boxes control system will be delivered within 28 days and if you are not delighted for any reason just return it to us for a full refund.

The Red Box starter system costs £129.

And additional Red One and Red Two Boxes are £34.95 each.

JUST PLUG IN AND SEE WHAT YOUR HOME COMPUTER IS MADE OF.

To: Electronic Fulfillment Services Ltd., Chesterton Mill, French's Road, Cambridge CB4 3NP.

Please send me the Red Box starter system at £129 (inc. £4 p.p.)

My microcomputer is a BBC Micro/Commodore 64/Spectrum 48k/Spectrum 128k (Delete as applicable.)

Also include:

Project Manuals at £9.95

additional Red One control boxes at £36.95 each (inc. £2 p.p.)

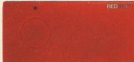
additional Red Two infra red sensor boxes at £36.95 each (inc. £2 p.p.)

I enclose a cheque for a total of £\_\_\_\_\_ made payable to General Information Systems Ltd. Readers' Account.

Signature \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_



# RED BOXES





switching on Red Leader brings up the control screen, which features fifteen available commands and a status line.

After entering the codes which are unique to each system (making the Red Boxes ideal for security or alarm applications), you can enter N to start a New program, then define the slave units which are to be used. For instance, if Red One is to be used to control a lamp, you should enter LAMP 1, then the ID number for the control unit.

Once you have installed all the slave units you can test then manually using their built-in on-off switches, then go on to program the system. As you program each device its name is highlighted on the control screen, which displays a real-time clock reading which should be reset each time you program the system. Up to ten devices can be controlled, by setting the device status (on/off), on time, off time,

time on duration, device type, repeat set (for going through the same timing routine each day), and so on. All this is about as simple as programming a video recorder; if you can cope with that, you can cope with Red Box.

To expand the possibilities of the system, any device can be controlled by an auxiliary device; so if the auxiliary is on, the device it controls goes on. For instance, an infra-red sensor could be used to detect someone entering a room, then switch a light on using a mains socket unit. Using the auxiliary function disables the normal timer functions,

though.

All your program settings can be saved to tape and reloaded at a later date, and once the program is installed your Spectrum can be disconnected and the Red units left to look after themselves.

If you want to use more powerful applications than those allowed by the control program, the Red Basic language offers a number of logic testing, graphic display and conditional commands which allow you to write your own routines.

The fifty page manual supplied with the system only goes so far in suggesting possible applications for the Red Box units. With further devices (such as humidity detectors, motors and robotic arms) in the pipeline, it should soon be possible to put together systems which could operate burglar alarms based on infra-red or pressure sensitive sensors; design "geriatric surveillance systems" which could sound alarms for the elderly in case of illness or collapse; and even at the simplest levels, use the Red Boxes to deter burglars by setting up patterns of lighting and activity from other household appliances which would make your empty house appear occupied. The £9.95 Project Manual will give you some more ideas.

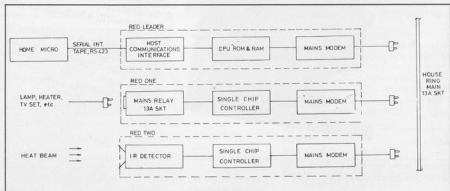
The Red Box system is easy to use, relatively inexpensive, and should bring new appeal to the area of domestic control using your home micro.

**Product:** Red Box system

**Micro:** Spectrum, BBC B, CBM 64

**Price:** Basic system (Red Leader, Red One, Red Two) £129; additional Red One or Red Two units \$34.95 each

**Supplier:** Electronic Fulfilment Services, Chesterton Mill, French's Road, Cambridge CB4 3NP





# DEMPSEY AND MAKEPEACE



You have a limited time to locate and rescue your partner who has been captured and is being held somewhere within the area of London.

Driving and shooting sequences combined with 3D exploration sections in the search for clues required to complete your mission.

Your final rating will not only depend on successfully rescuing your partner, but also on the time taken and on how many other crimes you can solve on the way.

**Spectrum 48k, Commodore 64, Amstrad CPC**

## Phasor One

### THE LATEST CONCEPT IN HAND-HELD JOYSTICKS

#### FEATURES:

1. Pistol grip designed for use by all age groups.
2. Equally suitable for left or right hand use.
3. Long-life microswitches designed to our own specification.
4. Incorporating a steel shaft with a ball-bearing pivot.
5. Ultra-sensitive control lever for quick response during game play.
6. Twelve month unconditional guarantee under normal use.
7. Comes complete with extra long cable.



Dempsey & Makepeace £8.95 inc P&P  
Phasor One Joystick £12.95 inc P&P

**Britannia Software Ltd**  
M28 Cardiff Workshops  
Lewis Road, Cardiff CF1 5EB

# Just picture this

JOHN DIAMOND ON THE NOVEL FEATURES  
TO BE FOUND IN THE UPDATED  
ARTIST 2 GRAPHICS PACKAGE

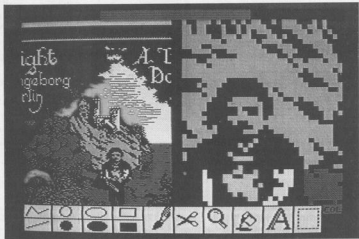
Improving on an already excellent product is a challenge which few software houses would want to accept. In the case of **The Artist**, it's even difficult to think *how* the product could be improved.

In fact, not only has the original program been substantially updated, but **The Artist 2** includes some new facilities which take it into the realms of a completely different product.

Like Rainbird's **Art Studio**, **The Artist** is a window/icon/menu driven program. Missing from the original program was the ability to drive the software with a mouse. This has now been rectified; you can use either an AMX or Kempston mouse, with suitable interface, as well as joystick or keyboard to control **Artist 2**.

Many of the original features are retained. The icons for selecting the current drawing shape - lines, rays, circles, ellipses, and so on - are shown at the bottom of the screen, while pull-down menus at the top access all the more advanced functions. Also retained is the zoom facility for close-up work, but now it's possible to display both the original and the magnified portions of the picture in a split-screen, and scroll around both simultaneously; a huge advantage for detailed work.

The other main additions to the program come in the "cut and paste" areas, which now contain facilities I have not seen on any other home micro (if you know different, keep it to yourself!) The most impressive is the ability to cut out areas of any required shape - not just the usual rectangles - and transfer them to another part of the screen. You can also invert, reflect or rotate the cut shape.



When positioning the cut shape you can choose to either merge it with the existing picture, replace the existing picture, or perform a sort of mix by which duplicated pixels are inverted.

Another useful function is rescaling, which, although it only works in black and white, allows you to define a window and reproduce the contents larger or smaller elsewhere on the screen. You can also load an outside picture file into a window in your existing picture, UNDO any function - even an UNDO - remove a FILL, and lots more.

Just to make things even more impressive, the **Artist 2** package does not limit you to the five font styles loaded with the main program. There's also a font editor which allows you to create whole new character sets, or just to

slightly edit the existing ones.

The best new feature is the sprite generator. Loaded separately from cassette, this conventional-sounding utility has some astonishing implications. It's possible to draw up to nineteen sprites of any size up to 6x6 character

squares, automatically generate outlines to produce sprite masks which can be used in sophisticated animation programs, and run through sequences of sprites to check animation routines. Although this isn't a full sprite animation package - **Artist 2**, after all, meant to be a drawing program - the sprite editor facility is powerful enough to have been used to create the animations for **The Edge's Fairlight 2**.

The last **Artist 2** facility is a form or simple "pagemaker" which allows text files to be loaded into your graphics screens. Together with the advanced compression techniques, which allow you to load 15-16 **Artist 2** screens into your Spectrum, the make-up system (designed specifically to be used with **The Writer** program) offers some facilities which cannot be found on any other Spectrum graphics program.

There's a 128K version on the way, probably available at the same time as the 48K package. **Artist 2** is simple enough for the beginner to use, but, especially with the enhancement of a mouse and microdrive or disc drive, becomes the most professional graphics program available for the Spectrum today. ◀

**Program:** **Artist 2**  
**Micro:** Spectrum 48K/128K  
**Price:** £14.95/£17.95

**Supplier:** Softechnics, 36-38 Southampton Street, London WC2, 01-831 1801



Upgrading the Spectrum to a full business system is not a task for the faint-hearted. The keyboard has to go; the tape/microdrive has to be replaced with a decent disc drive; and the additional cost of a quality printer has to be considered. An advanced operating system would also seem to be an early priority.

Saga's solution may be inelegant, but it works. Rather than produce the 'Z80-based Spectrum compatible computer' which was rumoured earlier in the year, the Saga Compliment uses tried and tested units bundled at a bargain price.

What do you get for your £289 + VAT?



# Flattery will get you...

Basically, a printer, disc drive and keyboard, all of which can be bought separately, but which would cost you a good deal more than \$344.95.

Since the Compliment system is mainly intended to allow the Spectrum to compete with the Amstrad 8000 series as a word processing station, the keyboard is pretty important. This is the established Saga 2+, a 71-key device with a full-sized space bar, numeric keypad, extra function keys and a programming keyword template above the keys. Normal price is \$54.95. As with most of the other Saga keyboards, the Spectrum's PCB is removed from its case and rehoused in the Saga 2+, which can be used with any existing Spectrum peripherals.

The disc drive provided with the Compliment system is the 256K Opus Discovery 1, a 3½ inch unit which has met with considerable success in the past, and could well be argued to be the 'standard' Spectrum drive. The Discovery includes a parallel printer interface, a Kempston standard joystick interface, a monitor port and a peripheral through connector, so using it doesn't limit your options elsewhere. The Spectrum is attached to the Discovery's peripheral connector, and screwed into place. The Discovery supplies power for the computer, so you can put your Sinclair power supply to one side.



The printer supplied with the system is the Polo Mk II, new to this country. It's an Epson FX-80 compatible device offering 150 character per second printing in normal code, or around 30 cps in near-

## RICHARD BENSON ON SAGA'S COMPLIMENT UPGRADE SYSTEM FOR THE SPECTRUM

letter quality mode. The printer works in Pica, Elite, Condensed and Emphasised typefaces, and has the minimum of controls; power/paper/online LEDs, and form feed/line feed/line select switches. At the rear are the power socket, on/off switch and Centronics connector. The Polo Mk II used a cartridge ribbon and can use tractor feed or cut sheet paper.

Having set up the keyboard, disc drive and printer (all the necessary cables are supplied) your next task is to boot the disc and investigate the supplied software.

Three established programs are supplied with the Compliment system. They are **Last Word**, Myrmidon's sophisticated word processor; **Campbell's Masterfile** and **Microsphere's Omnicalc**, respectively a database and spreadsheet. Included with the disc are several tutorial programs and utility files to help you to make the most of these packages.

The Last Word features a three-line information header and twenty free lines for entering text. The screen page can be set to a width of twenty, forty or eighty characters, while the actual printing width can be up to eighty characters.

The Last Word includes all the features you would expect from a professional quality word processor; full cursor control of character position, insert/delete and overwrite, centralise text, justify/unjustify, block repeat, search and replace, tabulation, headers, footers, page numbers, command summary, word count, calculator, and full file save/load/catalogue/erase/disc format.

The Masterfile and Omnicalc programs are specially extended for use with the Compliment system. Called from the main

disc menu, Masterfile now has the obvious disc catalogue function, the facility to transfer files to The Last Word, and an option to return to Basic. Omnicalc has an extra command 'Z' which makes available a range of disc commands to load and save both 'models' and work areas, and also to catalogue the disc, send direct commands to the printer, and produce screen-dumps.

The Compliment system disc also contains a key-define routine which allows you to tailor the character set and the relevant ASCII codes to suit your needs; for instance, if you need to use \$ signs instead of & signs.

The last utility provided with Compliment is **Trans Express**, a tape-disc transfer utility.

The Saga 'operating system' is a very simple menu selection routine, which produces a screen display from which you move to whichever main program you wish to use. It can be tailored to your own requirements with a few lines of Basic.

Short of producing a whole new operating system with icons, pull-down menus and a mouse, the Saga solution to upgrading the Spectrum seems to be the best one. Though offering little which has not been available before, Compliment is an excellent choice for the existing Spectrum owner who wishes to upgrade his micro to professional quality rather than ditch it and go for something like an Amstrad PCW 8256. The Compliment should sell well, and proves that the Spectrum's limited memory and facilities needn't bar it from serious use in the business market. ◀

### Product Saga Compliment

Micro Spectrum 48/128

Price \$344.95 inc VAT

Supplier Saga Systems, 2 Eve Road, Woking, Surrey GU21 4JT. Tel: 04862 22977.

present



**£39.95**  
**SPECTRUM 48K**  
**& 128 K (48K MODE ONLY)**

[illegible]

**MULTITRACE 1** is the **only** product that can be used to find out the **exact** location of any road in the country. **MULTITRACE 2** is the **only** product that can be used to find out the **exact** location of any road in the country. **MULTITRACE 1** is the **only** product that can be used to find out the **exact** location of any road in the country. **MULTITRACE 2** is the **only** product that can be used to find out the **exact** location of any road in the country.

**AMSTRAD 464, 664, £46.95**

## NO.1 MULTIPURPOSE INTERFACES FOR AMSTRAD & SPECTRUM

I enclose a cheque/PO for £..... (UK & Europe please add £1 overseas £2)  
or debit my   No   
Name  Card expiry   
Address

Please send

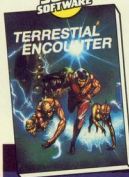
MULTIFACE ONE	£39.95	<input type="checkbox"/>	MULTIFACE TWO	£46.95	<input type="checkbox"/>
SELENE & ANACHRONISM	£ 9.95	<input type="checkbox"/>	STEEPLE JACK	£ 4.95	<input type="checkbox"/>
NEVER MIND...	Amstrad	<input type="checkbox"/>	or disk version	£ 14.95	<input type="checkbox"/>
MUSIC TYPEWRITER	£ 7.95	<input type="checkbox"/>	WRIGGLER Spectrum	£ 2.95	<input type="checkbox"/>
WRIGGLER Amstrad tape	£ 7.95	<input type="checkbox"/>	or disk version	£ 11.95	<input type="checkbox"/>
TRANS-EXPRESS cartridge	<input type="checkbox"/>	disk	<input type="checkbox"/>	wafer	<input type="checkbox"/>
					£9.95

**ROMANTIC ROBOT UK LTD** 77 Dyne Road London NW6 7DR  24 hrs   01-625 9463 

**LATEST  
RELEASE**

## TERRESTRIAL ENCOUNTER

The big action game for space freaks everywhere!  
**£14.99** ATARI 520 ST  
FROM



THE FIRST  
EVER SUPE  
3000 MLER

**THE SAS:  
OPERATION  
OVERFLASH!**



## THE SAS: OPERATION THUNDERFLASH!

**MEMBER LIST**  
The first ever Super Sparkler!  
Only £2.99 for a super 3-D graphic  
game. Your task as leader of the SAS  
squad is to spearhead an offensive  
against the terrorists who have  
occupied a foreign embassy. Can you  
stay the pace? **Spectrum 48k**



**SPECIAL  
DELIVERY**  
SPECTRUM 48k

MONKEY  
MAGIC

C-64

## ORC ATTACK

**SPECTRUM 48k**

THE LATEST FROM SPARKLERS ALSO INCLUDES:  
RIVER RESCUE    TANK COMMANDER    COMPUTER WAR  
ON C-64            ON ATARI            ON ATARI

**Spike Sparkler's  
pick of the hits  
at only £1.99 each  
Street Date 31 Oct.**

Poor old Santa! He's overslept again and now has only 5 hours to deliver all his Christmas goodies. Help him sort out this chaos by collecting and dropping the gifts down the right chimneys. **SOON ON C-64 AND ATARI**  
SPARKLE RATING: ★★★★★

Fast and funous with more than a dash of magic. This search for the holy scriptures involves battles with venomous creatures which you have to fend off with lightning bolts  
CPA 4/15/15 \*\*\*\*\*

Defend the castle against the hordes. As Eric the Brave you have to fight off waves of murderous Orcs, outwit and slay the evil Sorcerer, and defeat the gigantic Demon Troll. Six play levels.

SOON ON C-64 AND ATARI

SPARKLING RATING★★★★

AVAILABLE FROM ALL GOOD SOFTWARE STORES

Unit B11, Armstrong Mill, Summit Centre, Southwood, Farnborough, Hants. GU14 0NP. Tel: 01532 532200.

# Sparklers

# Games explosion!

ASHLEY "BUZZ" SCHWARTKOPF ON THE TRIUMPHS  
AND TRAGEDIES IN THE LATEST CROP OF  
SPECTRUM ARCADE GAMES

## URIDIUM

URIDIUM was an enormous hit on the Commodore 64, reaching number one position by combining revolutionary bas-relief metallic graphics, flicker-free multi-sprite animation and fast zapping action. The Spectrum version, which could so easily have been a mere parody of the original game, in fact retains many of its best features and emerges as a strong contender for a Christmas number one.

Uridium is a sideways-scrolling shoot-'em taking place over a series of alien dreadnoughts. You pilot a Manta fighter, viewed from above as it moves over the alien cruisers. The detailed surface of the cruiser includes installations which can be zapped for extra points, while the flashing defence ports give forth homing mines which cannot be shot, only dodged. Your fighter weaves and spins convincingly, followed by a realistic shadow, through 180 degree turns which help you to shake off persistent mines. Also after you are



waves of fighters, of varying speed and firepower. Zapping a whole wave gets you a bonus at the end of each screen, after you have made the difficult landing.

Missing from the Spectrum version are

the strafing run and timing test from the CBM 64 version, but the Spectrum Uridium remains one of the best shoot-'em-ups ever for the Sinclair machine, and a sure-fire hit. ◀

## SHAO-LIN'S ROAD

SHAO-LIN'S ROAD is the follow-up to Konami's Yie-Ar Kung-Fu arcade game, and The Edge's conversion looks as close to the original as it's possible to get.

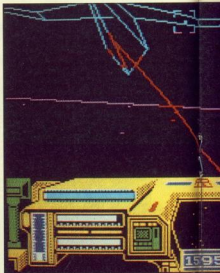
Like Yie-Ar Kung-Fu, Shao-Lin's Road is a simplified martial arts game in which your hero has only two basic moves, a mid-kick and a flying kick. The action takes place on three levels over five

background screens, and each background screen has a sideways scroll which has allowed the programmers to cram in the same amount of action as is found in the arcade original.

The five backgrounds are based faithfully on the arcade version, and designed using The Edge's Artist utility package. Animation on the computer version looks fast and smooth, and your hero must cut down the same selection of punching, kicking, chopping opponents. On

each level there is a secret weapon.

Leaping from level to level, avoiding the pitfalls and combating progressively harder opponents, Shao-Lin's Road looks like one of the more exciting of the latest batch of arcade conversions. ◀



## STARGLIDER

STARGLIDER first saw the light on the

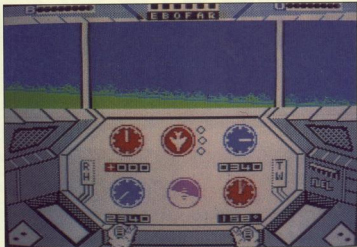
## INFILTRATOR

INFILTRATOR - 'the game that rocked America' - is US Gold's most promising offering for the Christmas market. You take the role of Johnny 'Jimbo-Baby' McGibbits (uh?) in a mission to save the world from the Mad Leader.

Infilitrator is a complex game taking place in three main stages. The first is a helicopter flight simulator, involving the usual out-of-cockpit view, a large selection of steering, weaponry and communications controls, and realistic combat routines.

The second section finds you on the ground, attempting to penetrate the secret base. You have grenades, explosives, photographic film and gas spray to help you complete your mission, and objects found during your search can be obtained and displayed on an inventory screen.

Enemy guards can challenge you to produce identity papers or code words, and failing to comply results in an alarm being sounded. Assuming everything goes



according to plan, and you don't run out of mission time, the last phase of the game takes place inside the headquarters, where you must penetrate the security enclosure to win the game.

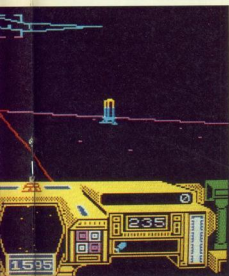
Infilitrator is very complex and looks good, but the lengthy instructions are written in an appallingly unfunny style. Just rely on the quick reference card for instructions and get into it. ◀

## 180

180 doesn't sound promising; it's a darts simulation on Mastertronic's \$2.99 MAD label. Prepare yourself for a shock; it's very good. Featuring eight opponents of

increasingly greater skill, digitised speech and one- or two-player options, 180 has two main displays. One shows the dart board itself, with a large wavering hand which you must get under control with joystick or keyboard before launching your dart; the other shows your computerised opponent having his go.

Scores appear chalked up on a blackboard beside the dart board, and all the usual rules apply; start from 501 and finish on a double. While your opponent takes his go, watch out for the ructions taking place in the background, and for that professional touch learn the finishing table included in the insert which gives



range of controls and displays for your fighter, as you battle to destroy the aliens who have over-run Earth.

The actual battle display is a marvel of animated wire-frame graphics, as lumbering walkers, speedy tanks, evasive flyers and powerful ground emplacements conspire to blast you from the sky. To make up for the slight loss of speed compared with the Atari ST version, the Spectrum Starglider involves a much greater element of strategy.

Your task is to destroy the Starglider itself, but since this requires more missiles than you can carry in one run, you must battle your way through the warzone several times.

Other features include a wire-guided missile display and, on the forthcoming 128K version, improved sound effects and music. Definitely a contender for the title of most sophisticated game program to appear on the Spectrum.

The screen shots shown here are from a pre-production version, and the colours and parts of the screen display may be altered in the final game, which is being produced by Realtime Software for Rainbird. ◀

powerful 68000-based Atari 520 ST, and converting it to the Spectrum was a great challenge which has been well met.

Your cockpit-view presents you with a



you the preferred combinations of shots to get the best from your last three darts.

Good fun at a bargain price from Mastertronic. ◀

## THANATOS

HISTORICALLY, the dragon has always played the role of the villain in computer games. It's probably something to do with The Hobbit, which gave them a bad name, and games like Dragon's Lair which have perpetuated sizeist, anti-reptilian stereotypes. Now Thanatos from Durell reverses the trend by making the dragon

continued on page 35 ▶



# The Vera Cruz



**AFFAIR**

*Pit your wits against  
a Criminal Genius...*



VERA CRUZ, The FIRST in Infogrames' Crime Series.  
Available for AMSTRAD, CBM64, MSX and SPECTRUM

MITRE HOUSE, ABBEY ROAD  
ENFIELD, MIDDSX. EN1 2RQ  
TELEPHONE: 01-364 0123





◀ continued from page 33

the hero, and giving him the chance to squash all those troublesome do-gooders and whingeing peasants who normally make life so difficult. Moreover, *Thanatos* is a technical triumph which features some of the best handling of extra-large sprites yet seen on the Spectrum.

There are three main phases to the game. In the first, you must rescue a sorceress from a castle; then take her across an ocean in search of her spell-book; then, finally, take her to her home castle. Each phase features lots of strength-sapping challenges; spear-

throwing peasants, falling stalactites, poisonous threads and so on. In your defence you can project shrivelling flames, or land to pick up boulders to use as weapons, scoring double points for dropping them on sundry heads.

The animation of the dragon is excellent, with huge flapping wings, a bobbing head and a realistic bunny-hop when on the ground. The backgrounds are decent, though (on the early stages at least) there are large black areas to minimise any possible colour priority problems. Displayed at the bottom of the screen are two tell-tale hearts to keep an eye on. One gives you overall strength, which is obviously sapped by contact with spears, stalactites, threads or sea-monsters; the other gives your venom level. To decrease your heart rate you must land and keep still – a tricky prospect when surrounded by armoured knights. The turn is great, looking like a Klingon battlecruiser bringing its guns to bear.

As a bonus, there's excellent music on the 128K version, and of course keyboard or joystick control options.

Great stuff, and politically sound from a dragonist point of view. ◀

## FAIRLIGHT 2

*FAIRLIGHT* set new standards for complexity and graphic detail when it first appeared on the Spectrum earlier in the year.

Although very much along the *Ultimate* problem-solving/object-moving/sword-wagging lines, it inspired such enthusiasm that it was almost bound to spawn a sequel.

Well, here it is; *Fairlight 2*. Visually, it's almost identical to the original, with the same detailed mono-colour screens and complex animated figures against exotic backgrounds.

The plot takes up exactly where *F1* left

off; having escaped from the castle and handed the magic book to the aged wizard. A mistake, as it turns out; he turns out to be the wizardly equivalent of Derek Hutton, and to have his own plans involving lots of death and suffering. Hence your quest to get the book back.

The 48K version of the game loads in two parts, the first involving the rescue of an imprisoned sea captain, the second a journey across the ocean to find the book. Each part has around 70 screens. Object movement and screen switching is certainly faster than the original (which was pretty fast); and the backgrounds include a deserted city, a jungle, haunted caverns and the ship itself. Some of the new sprites – designed with the Artist 2 graphics/sprite design package – are

particularly good, and with a 128K version featuring single load and sophisticated music, *Fairlight 2* – *A Trail of Darkness* – promises to be another monster hit. Let's hope that this time the *Book of Light* has ended up in the right hands, though I suspect that *Fairlight 3* is in the works. ◀

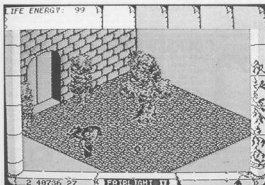
## WAR



*WAR* was pretty much of a plonker on the Commodore 64, featuring Uridium-lookalike graphics but a poor excuse for a plotline and an unplayable bonus game at the end of each screen. So what has been retained for the Spectrum version? You guessed it – all the bad bits.

It's a totally different game; with a vertically scrolling background featuring tiny, monochrome details, squashed into a window in the centre of the screen. The character set on the instruction page is so bizarre as to be unreadable; the object of the game is obscure and seems to involve nothing more than destroying everything which moves (and everything else just to be certain).

I'm told that you get better weapons at higher levels, but to be honest my brain melted after the first few minutes. To rephrase the slogan – being a hero is easy – staying awake is more difficult. ◀







**YOU DON'T  
NEED TO  
WAIT ALL  
MONTH TO  
ADVERTISE  
IN:**

**POPULAR  
Computing  
WEEKLY**

Call **01-437  
4343**

for details

**Datapen**

**A QUALITY LIGHTPEN  
for the SPECTRUM computer**

**NOW ONLY  
£19.95**



• Incorporates features not provided with other pens. • Push button operation on pen - no need to carry board. • Works under any light conditions. • Push to draw accurately. • 20 pre-defined commands allow plotting of geometric shapes, including triangles, lines, circles, arcs, text or user-defined characters. • Uses oil or paper and ink. • A screen grid may be turned on/off at will, to assist drawing. • Reversible eraser capability. • All drawings can be saved to tape for further use. • Plug in direct - no batteries, additional components, or adjustments needed. • Notebook plus printout of routines for use in your own programs.

**PLUS:**

**3 SOFTWARE PROGRAMS**

- Routines and ideas for your own programs. (Menus, games, music, etc.)
- User-defined graphics creation program.
- Superb full colour drawing program as illustrated in these actual screen photographs.

Postage £1.00. Send cheque, P.O. or ACCESS No. for £20.95 to:

**DATAPEN MICROTECHNOLOGY LIMITED,**  
Kingsclere Road, OVERTON, Hants RG25 3JB. 0256 770488

or ask at your local computer shop. Send S.A.E. for details. (DEPT PCW 1)

Lightpens and software are also available for BBC B, Dragon, CSM-64 and VIC-20

**WANTED!!**

Our spies inform us that programs are being written and kept secret from the public. Hidden in the depths of suburbia - lurking behind closed doors - depriving us all of vital products...



We want these programs captured. Large rewards will be offered for programs that we can sell around the world.

If you have any information for us relating to the whereabouts of such software, contact:

**ACTIVISION  
ENTERTAINMENT SOFTWARE®**

Software Studios  
Activation (UK) Limited  
Activation House, 23 Pond Street, Hampshire, London NW3 2PN  
Tel: 01 431 100 / 01 431 2860 Telex: 21485

**POOLSWINNER**

**THE ULTIMATE POOLS PREDICTION PROGRAM**

- **MASSIVE DATABASE** Poolswinner is a sophisticated Pools prediction aid. It comes complete with the largest database available - 22000 matches over 10 years. The database updates automatically as results come in.
- **PREDICTS** Not just SCOREDRAWS, but ALWAYS, HOMES and NO SCORES.
- **SUCCESSFUL** SELEC guarantee that Poolswinner performs significantly better than chance.
- **ADAPTABLE** Probabilities are given on every feature - choose as many selections as you need for your bet. The precise prediction formula can be set by the user - you can develop and test your own unique method.
- **SIMPLE DATA ENTRY** All team names are in the program. Simply type in the reference numbers from the screen. Or use FIXGEN to produce feature list automatically (see below).
- **DISK/MICRODRIVE COMPATIBLE** Tapes supplied with conversion instructions.
- **PRINTER SUPPORT** Pull hard copy printout of data if you have a printer.

**PRICE £15.00 (all inclusive)**

**NOW  
AVAILABLE**

**FIXGEN 86/7**

AT LAST! No more struggling for hours to get the feature list into the computer. FIXGEN has been programmed with all English and Scottish fixtures for 1987. Simply type in the date, and the full feature list is generated in seconds. Fully compatible with Poolswinner. Yearly updates available.

**POOLSWINNER with FIXGEN £16.50 (for both)**



**COURSEWINNER V3  
THE PUNTERS COMPUTER PROGRAM**

You can develop and test your own unique winning system by adjusting the analysis formula, or use the program in simple mode. Coursewinner V3 uses statistical analysis of major factors including past form, speed ratings, course statistics, prize money, weight, going, trainer and jockey form etc. etc. It outputs most likely winners, good long odds bets, forecasts, straight bets etc. The database includes vital course statistics for all British courses. You can update the database - never goes out of date.

**PRICE £15.00 (all inclusive) includes Flat and National Race versions.**

ALL PROGRAMS AVAILABLE FOR AMSTRAD CPC, AMSTRAD PCW, ADD £10.00, AS BROS, ALL SPECTRUM, COMMODORE 64, IBM AT/XT (see...), SINGULAR 25.

Supplied on tape (single conversion to disc) - except PCW (on 3" disc) and QX (on microdrive)

Send Cheques/P.O.s for return of post service to...



37 COUNCILLOR LANE, CHADLE, CHESHIRE. ☎ 061-428 7425



# Printer problem solver

ANDREW MAYFAIR ON RAM'S INGENUOUS SPECTRUM CENTRONICS INTERFACE WITH BUILT-IN WORD PROCESSING SOFTWARE

**O**f the many problems with word-processing on the Spectrum, two of the most annoying are the lack of a standard printer port and the necessity of loading software from tape, or the unreliable microdrive. Now both major problems – and several minor ones – are solved by a single device.

The RamPrint interface provides a standard Centronics output from the Spectrum, allowing it to be connected to high-quality Epson, Seikosha, Citizen and many other makes of printer. RamPrint comes with the necessary connecting cable already attached, saving one further expense; and, best of all, it also has built-in word processing software, which offers instant access and another cost saving.

RamPrint will work with any Spectrum (a few simple Basic commands need to be typed in to make it function with the 128), and the built-in RamWrite software functions with any Spectrum except the 16K model. On plugging in and powering up, the interface takes up no memory space and can be used simply to produce listings using the standard Basic commands. At some stage, however, you will want to do more than that, so using simple calls such as LPRINT "CSET" you can call up a series of menus which allow you to alter your printer's controls. Moving a coloured band through the options available in the menu window with the space bar, you can alter the printing width, line feed, and token/character setting. This last determines whether your print-outs contain command words such as THEN, or their numeric equivalents, for instance CHR\$(203).

## Status

The Printer Set menu also allows you to determine whether the printer works in copy text or screen dump mode. The first will just print out characters, while the second produces a hi-res screen dump. The last option on this menu allows you to select enlarged text. To access the word processor, another simple call is used, bringing up the status line and copyright message. The program operates in two modes, Command and Edit, with twenty-one lines available for text manipulation and two for entering commands.

Although RamWrite is nowhere near as powerful as, say, Tasword Three or The Writer, it's a useful package which should cope happily with most of your word processing requirements.

There are two text modes, 32 and 64 characters per line. The display is scrolled right and left using the cursor keys to see all the text; not the best way to work, but a limitation which is difficult to overcome on the Spectrum.

A quick stroll through the facilities of RamWrite will give you some idea of what it can do. There are two main editing modes, insert and overwrite, which can be used either in text mode (while you are writing a document) or in edit mode. The

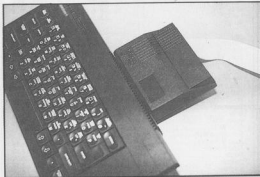


number of lines printed on each page can be altered to suit your printer, from 1 to 66. A four-line gap can be automatically inserted at the start and end of each page.

There's a cap lock, margin set, page numbering from 1 to 199, automatic centering, and the very useful string find and global replace. This enables you to locate any usage of a particular word or phrase, then replace it throughout the document with another phrase of your choice.

If your printer supports it, you can also select condensed, double strike, elongated or right justified printing. It's also possible to underline text, and mark and copy blocks of text.

The printer set-up page is accessible



from RamWrite without destroying the text. Needless to say, documents can be saved to tape or microdrive (and catalogued from microdrive without destroying the current text), and documents can be merged together.

Most commands are issued using a two-key combination, and are both sensibly chosen and easy to remember.

The eight-page manual supplied with the review model was reasonably clear, but lacked the tutorial element which might have been of help to first time users. However, it's clear that the combination of interface/cable/software at such a reasonable price will appeal to the sophisticated user as well as the novice, and of course there's no reason why the interface cannot be used with more powerful word processing software if you need facilities which are not found in the likeable RamWrite program.

As a bonus for games players, RamPrint even includes a Kempston standard joystick interface socket, so from now on you don't even have to unplug your printer to take a break for fun and games. RamPrint is another innovative and economical design from the increasingly imaginative Ram Electronics, and deserves to be a big hit. ◀

**Product:** RamPrint Centronics Interface  
**Micro:** Any Spectrum

**Price:** £34.95

**Supplier:** Ram Electronics, Unit 16, Redfields Park, Redfields Lane, Church Crookham, Aldershot, Hants GU13 0RE

## LOGIC'S SUMMER SALE

### SPECTRUM TITLES

Lords of Time	4.95	Shoot The Rapids	2.99
Snowball	4.95	Gibbys Day Out	2.99
Colossal Adventure	4.95	Star Trooper	2.99
Ennead Isle	4.95	Master of the Lamp	2.99
Adventure Quest	4.95	Snowball	4.95
Buzzom	2.95	Adventure Quest	4.95
Highway Encounter	2.95	Infotop	3.99
Alien Highway	3.99	Underworld	3.99
Knockout	2.99	Modbus	2.99
Match Fishing	2.99	Frak	3.95
J. S. W.	2.99	William Wobbler	3.95
Now Games Compilation	3.99	Harvey Smith's Show Jumper	2.95
Pinball Wizard	3.50	Knockout	2.95
Superchess 3-5	3.95	The Designer's Pencil	2.95
Juggernaut	2.95	Music Studio by Activision	3.95
Tales	2.99	Ms. Pacman (cart)	5.95
Beamrider	2.99	Robotron 2084 (cart)	5.95
Phantasia Diamond	2.99	Defender (cart)	5.95
Sidpman/Hulk	2.99	Donkey Kong (cart)	5.95
Heathrow ATC	2.95	Moon Patrol (cart)	5.95
W. Wobbler	3.95	Dig Dug (cart)	5.95
Toy Broom	2.95	World of War (cart)	2.95
Adventureland Secret Mission	3.99	International Soccer (cart)	4.95
Komplex	1.99	Match Fishing	2.95
Video Post	1.99	Zimyth Head Alignments	6.99
Manic Miner	2.99	Basilisk Bond	2.99
Frank Bruno's Boxing	4.25	Death Star Int	3.99
Mantronix	3.99	Beyond Red Forest	4.99
The Covenant	2.99		
Golfing World	1.99		
Bladerunner	2.99		
Monty Mole	2.99		
Beachhead II	3.99		
Bruce Lee	3.99		
Bounty Bob	3.99		
Salvo Wolf	2.99		
Everyone's a Wally	2.99		
Robin of Sherwood	3.50		
Micro Prologue	3.95		
Twister	3.95		
Scrabble	4.95		
Knightlife	3.99		
D.T. 1's Supertest	4.50		
Revolution	4.50		
Factory Breakout	2.95		
Cyberball	1.25		
Jasper	1.25		
Polytux	1.50		
Starbike	2.50		

### COMM 64 DISCS

Zork I	3.99
Zork II	3.99
Zork III	3.99
Star Wars	3.99
Star Wars II	3.99
Star Wars III	3.99
Star Wars IV	3.99
Star Wars V	3.99
Star Wars VI	3.99
Star Wars VII	3.99
Star Wars VIII	3.99
Star Wars IX	3.99
Star Wars X	3.99
Star Wars XI	3.99
Star Wars XII	3.99
Star Wars XIII	3.99
Star Wars XIV	3.99
Star Wars XV	3.99
Star Wars XVI	3.99
Star Wars XVII	3.99
Star Wars XVIII	3.99
Star Wars XIX	3.99
Star Wars XX	3.99
Star Wars XXI	3.99
Star Wars XXII	3.99
Star Wars XXIII	3.99
Star Wars XXIV	3.99
Star Wars XXV	3.99
Star Wars XXVI	3.99
Star Wars XXVII	3.99
Star Wars XXVIII	3.99
Star Wars XXIX	3.99
Star Wars XXX	3.99

### 64 UTILITIES

Dr Watson 64 Ass Lang. Course	8.95
Disc	2.95
Touch Type (class)	49.95
Commodore Modems	49.95
Easy File (disc)	9.95
Programmer's Ref. Guides	3.99
Easy Shock (disc)	9.95
Easy Script (disc)	9.95
Finance (disc)	9.95
Easy Spell (disc)	9.95
Breders Basic 64 (Cond)	79.95
1551 Disc drives for +4 and C16	79.95
C2N Datacard	24.99
64 Music Maker Keyboard	7.99
Commodore 128 Music Maker	9.95
Keyboard	9.95
Parent/Assembler/Disassembler	2.99
Programmers Utilities (Disc)	7.95
Simons Basic Extension	4.99
(cassette or disc)	4.99

### Bargain Books from 1st Publishing

8 Books for just £9.95 + £2.50 p&p	
Normally over £50.00 RRP	
64 Cassette Book	
Anatomy of a Commodore 64	
Graphic Book C64	
Pokes & Pokes C64	
Tricks & Tips C64	
Advanced Machine Language Book C64	
Ideas Book C64	
Machine Language Book C64	
1st Publishing Programs on Disc for C64	
All just £10.95 each	
At least £20.00 off RRP	
Firstworld (word proc)	
Firstbase (database)	
Basic 64C	
Pascal (language)	
O.A. Training Course (language)	
Power Plan (calc prog)	
Assembler Monitor (compiler)	
Postage and packing	
75p all orders	
OVERSEAS	
£1.00 per page	



**LOGIC SALES LTD.**  
6 MIDGATE, PETERBOROUGH,  
CAMBS PE1 1TN  
24 hour ordering on 0733 313870

## WD Software

### For the SINCLAIR QL:

**JOSS £15 on mdv or 5 1/4" flp, £17 on 3 1/2" flp**

Forget syntax errors and mistyped names in file commands! Just move a cursor and press SPACE. Cursor keys or joystick allows access to up to 8 microdrives and all the discs your interface will handle, with up to 150 files on each. Scroll & print directories, COPY, DELETE or PRINT any file, select TV or Monitor mode before LOADING/RUNNING a program. Use keyboard only to set date or label a medium. Easy to use with Palon or other software. No silly icons to learn—JOSS will tell you what it's doing! Mass copying/printing utilities and programmer's toolkit. Specify disc size, tracks and interface (CST, Cumans, PCML, MicroPeripheral) or microdrive only.

**RefQL7 £11 on 2 mdvs or 1 3/4" flp, £9 on 5 1/4" flp**

For use with ARCHIVE 2, contains 1300 useful references and a search/print program. Find programs, articles and reviews buried in the magazines on your shelf! Check updates of earlier edition.

**Mdv extension cable (8") £5.50.** Add 2X Microdrives to your QL Joystick Adaptor £4.99

**For the QL, Spectrum (all), BBC & Electron:**  
**WD Morse Tutor £4 cassette, £6 mdv or 5 1/4" flp, £8 3 1/2" flp**

Teach yourself to read Morse Code. From absolute beginning to 18 words/minute. Feedback on screen or printer. Random letters, numbers or mixed, 100 random sentences, many helpful features include phonetic speech via Currah Micro-Speed (Spectrum). Discs unsuitable for BBC B+

### For the Sinclair Spectrum (48/128K):

**WordFinder 2 £8 cassette**

16,000 word vocabulary, 3 to 10 letters long.

**WordFinder 3 £10 on mdv or 5 1/4" disc, £12 on 3 1/2" flp**

19,000 word vocabulary, 3 to 12 letters long. Solves anagrams and missing letter words. Very fast machine code. Update WordFinder 1 for £2.

**Spectrum disc versions are Opus TR (Beta) and SPDI.**

We export hardware and third-party software. Ask for lists.

### Payment

In advance, in STERLING or British bank branches, International Giro, Postal Order or ACCESS/MasterCard. Add £1 extra Europe for AIRMAIL.

### from:

**WDSoftware (PCW), Hilltop, St Mary, Jersey, C.I.**  
Tel 0534 81392

## "THE ADVENTURERS HANDBOOK"

The monthly book no self-confessed adventurer should be without.

"Stunning value" — Tony Bridge, PCW, issue 13 available now!

**44 pages of adventure help and news for just £1**

**FOR EVEN BETTER VALUE TAKE ADVANTAGE OF OUR SUBSCRIPTION RATES**

3 issues for £2.75

6 issues for £5.00

12 issues for £9.00

Issues 1 to 12 are still available and cover hints, maps and solutions to over 225 adventures (issues 1-6 for £5, issues 7-12 £1 each).

## ARCADE PLAYERS

If you enjoy arcade games why not take a look at our other handbooks — £1 each — back copies and subscriptions as for Adventurer.

Spectrum Arcade Handbook — issue 12  
Commodore Arcade Handbook — issue 12  
Amstrad Handbook (including adventures) — issue 12  
BBC Handbook (including adventures) — issue 12  
C16/Plus 4 Handbook (including adventures) — issue 6

Send cheque or PO to:

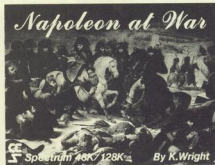
**H&D SERVICES (PCW)**  
1338 Ashton Old Road  
Higher Openshaw  
Manchester M11 1JG  
Tel: 061-370 5666

# WAR GAMES

## GALLIPOLI



Fast, interactive with a scrolling map and hidden movement, over a varied terrain. For 1, 2 or 3 players.



High degree of computer intelligence allows this game to be played at strategic and tactical levels over a scrolling map. 1 player game.

Price £8.95 each. Available Mail Order – 48hr. delivery – from  
Cases Computer Simulations Ltd., 14 Langton Way, London SE3 7TL. Tel. 01 858 0763

STRATEGY GAMES

THEY'RE NO PUSHOVER

## HiSoft BASIC Compiler

Quite simply the fastest, most compact, most complete, most easy-to-use ZX BASIC compiler available for the Spectrum, Spectrum +, Spectrum 128 & Spectrum Plus 2

HiSoft BASIC for the Spectrum is a brand new floating point compiler packed full of professional features, yet so easy to use with simple one character commands. The compiler is only 11K long & compiles up to 30K of BASIC without tape or microdrive. This is the compiler that everybody else has been trying to produce.

Special Introductory Offer

£15.95

### HiSoft Pascal & C

HiSoft Pascal is an almost complete implementation of Pascal; it runs super fast and comes with Turtle Graphics. The only Pascal on the Spectrum and the best £25

HiSoft C is an integer Kernighan & Ritchie compiler with graphics & sound support. New version 1.3 contains lots more features £25

### HiSoft Devpac

HiSoft Devpac is the original and definitive assembler/debugger for the Spectrum. Macros, conditional assembly, large assemblies, single step, breakpoints, small in size for maximum flexibility, simply the standard development pack £14

Other products include Ultrakit & Colt, a super fast integer compiler with sprites. Please write or phone for full details of all our products. Order by phone using Access or Visa or by post with a cheque / postal order.

### QL Products

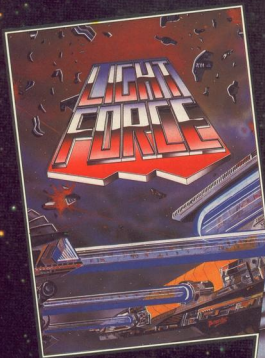
DevpacQL is a fast, integrated assembler/editor and debugger package. New, low price £29.95

MonQL, debugger/disassembler out of DevpacQL is available on judrive & ROM at £14.95/£29.95

SuperBEE contains more than 70 SuperBASIC extensions on ROM. Now reduced to only £19.95

HiSoft The Old School, Greenfield, Bedford, MK45 5DE (0525) 718181

# "GAMES AT THE SPEED OF LIGHT..."



**LIGHTFORCE** is for **VENGEANCE**.....

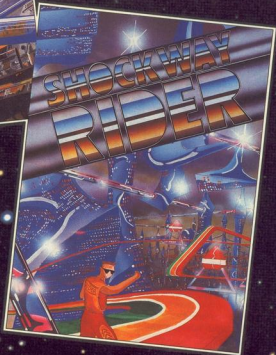
**LIGHTFORCE** is the Punishment Arm of Galactic Fighter Command.

When a Terran-settled system at the edge of the galaxy is seized by an alien force, revenge comes in the form of a lone

**LIGHTFORCE** fighter.

**LIGHTFORCE** confronts alien in a dazzling battle above the strange landscapes of the Ice Planet, the Jungle Planet, Alien factories and the impassable Asteroid Belt.

**LIGHTFORCE** — at the speed of Light  
- from **FTL**.



**SHOCKWAY RIDERS** are the pick of the street gangs - **ATHLETIC, AGGRESSIVE & ARROGANT** - as they cruise along the triple-speed moving walkways that circle the great **MEGACITIES** of the 21st Century. **THE ULTIMATE AIM OF EVERY RIDER** is to go "**FULL CIRCLE**" - to do that, he must fight off the Block Boys, the Cops and the Vigilantes - as well as negotiating the Speed Traps and Rider Ramps erected by the angry local residents!

**SHOCKWAY RIDER** is the most original arcade game of the year -  
**THE ULTIMATE FUTURE SHOCK!!**

**FTL**  
**FASTER THAN LIGHT**

**LIGHTFORCE** AVAILABLE SEPT. '86  
**SHOCKWAY RIDER** AVAILABLE OCT. '86

**SPECTRUM £7.95**  
**AMSTRAD & COMMODORE £8.95**

FTL FASTER THAN LIGHT, CARTER FOLLIS GROUP OF COMPANIES,  
SEDGLEY ROAD EAST, TIPTON, WEST MIDLANDS DY4 7UJ. Tel: 021-520 2981 (4 lines)

## Spreadsheet

D Lester

**S**preadsheet for the BBC/Electron micros features 720 cells for formula/values, auto update option, shorthand formula routines, relative co-

pying of formula to other rows or columns, display facility, Epson printout, and auto add option for new values.

Once run a menu appears offering various options. For the first time user 'I' must be selected. The following keys can now be used to enter data, titles and formula.

Movement is via cursor keys or 'Z' & 'X' and the 'I' & 'J' keys. Row labelling must be done before inputting any values as

movement is restricted by those with a title row.

The space bar makes the program expect an input of an appropriate variety. 'C' enters the column title margin.

'R' enters the row margin (as columns). Pressing 'L' will fill the row with straight lines (for arranging columns etc).

The rest of the instructions will be given with the final part of the listing next week.

```

L.
10REM***** SPREADSHEET *****
20REM*      Version 8.4      *
30REM*      by D.Lester      *
40REM*      Summer 1986     *
50REM*****
60*FX15
70*KEY100,1:MFX12,21:MINL,1M
80MODE6
90ONERRORPROCmenu
100VDU23,1,0;0;0;0;0;
110VDU23,224,24,28,250,193,193,250,28,
24
120VDU23,225,255,0,0,0,0,0,0
130VDU23,227,64,96,112,120,124,126,127
,0
140VDU23,228,2,6,14,30,62,126,254,0
150VDU23,229,128,0,128,0,128,0,128,0
160VDU23,230,0,0,0,0,0,0,0,85
170DIMc$(18,20)
180DIMc(18,20)
190FORIpx=1:107:OSCLI"KEY"+STR$Ipx+CHR$(
1px+34):NEXT
200px=0:c$(0,0)="Spreadsheet":UX=0
210x=18:y=3:k=CHR$(224):ad=0
220*FX12,1
230*FX4,1
240*FX214,3
250*FX213,85
260PROCmenu:END
270DEF PROCmenu
280RESTORE#0
290COLOUR128:FX=1:rb=128:CLS:VDU19,1,5
;0;:VDU19,129,133;0;
300x=0:090A:ix=1
310PROCc:VDU28,2,24,37,2:CLS:VDU28,8,2
3,32,4:PROCc:CLS:VDU28,7,22,31,3:CLS:VDU
26
320PRINTTAB(37,2)CHR$(227)
330PRINTTAB(2,2)CHR$(228)
340PRINTTAB(13,4)"MENU OPTIONS"
350PRINTTAB(13,5)STRING$(12,CHR$(225))
360FORIpx=77021STEP2
370READt$
380PRINTTAB(11,1px):Ipx/2-2.5:STRING$(
4,""),t$
390NEXT
400DATAEnter Sheet,Printout,Save Data,
lect Data,Reset Values,Reset Sheet,Reset
ect Page,Auto Update
410IFUX<0PROCc:PRINTTAB(27,21)" ON " :P
ROCC:ELSE PRINTTAB(27,21)" OFF"
420t$=GET$
430IFt$="1"CLS:PROCc:ENDPROC
440IFt$="2"PROCp
450IFt$="3"PROCsave:ENDPROC
460IFt$="4"PROCload:ENDPROC
470IFt$="5"PROCc:VDU19,1,1;0;:VDU7:PRI
NTTAB(8,15)" :k$; " 5....Are you sure? "
:ans=GET$:IFans="Y"FORIX=1TO18:FORIY=1TO
20:c(X,Y,UX)=0:NEXTIY:NEXTIY:PROCmenu
480IFt$="6"PROCc:VDU19,1,1;0;:VDU7:PRI
NTTAB(8,17)" :k$; " 6....Are you sure? "
:ans=GET$:IFans="Y"RUN
490IFt$="7"PROCc:VDU19,1,3;0;:PRINTTAB
(8,19)" :k$; " 7....Required page? :ans$
=GET$:PROCc:IFVAL(ANS)<10ANDVAL(ANS)>0CL
S:px=VAL(ANS)-1:PROCc:ENDPROC
500IFt$="8"UX=NOTUX:GOTO410
510GOTO20:ENDPROC
520DEF PROCcf
530VDU19,1,0;0;
540VDU28,0,23,39,1
550PROCc:CLS
560PRINTTAB(3,0):c$(0,0)
570VDU28,0,24,16,4:PROCc:CLS
580VDU28,0,24,39,1
590FOR Ipx=1 TO 20
600PRINTTAB(1,2+Ipx):Ipx:STRING$(3-(LO
6(Ipx+0,1)), "_"):c$(0,Ipx)
610PROCc:PRINTTAB(17,2+Ipx)CHR$(229):P
ROCC
620NEXT
630PRINTTAB(0,0)CHR$(228)
640PRINTTAB(39,0)CHR$(227)
650PROCc
660PRINTTAB(0,2)STRING$(17,CHR$(230))
670VDU19,1,2;0;
680PROCc:ENDPROC
690DEF PROCup
700c=2:IFUX<0PROCc:PRINTTAB(10,1)" ON
":PROCc:ELSE PRINTTAB(10,1)" OFF"
710IFad=0PROCc:PRINTTAB(15,1)"*":PROCc
:ELSE PRINTTAB(15,1)" "
720ONERRORVDU19,1,1;0;:090A:
PRINTTAB(3,0)" Bad Formula.....deletin
g :CHR$(xcx+64):ycx:SPC(4):FOR Ipx=1 TO
600:NEXT:PRINTTAB(3,0)SPC(34):PRINTTAB
(3,0)c$(0,0):c$(xcx,ycx)="" :VDU19,1,2;0;
:PROCp
730090A:090A
740PROCc:PRINTTAB(22,0)" Updating...
* :PROCc:FORIpx=0TO2:PRINTTAB(17,1px)CHR$(
229):NEXT
750PRINTTAB(3,1):"Page=":px+1:"--"
760090A:02020
770xt=25
7801mon=px*2+1:1mtw=px*2+2
790FORycx=1mon TO 1mtw
800xt=xt+11
810PRINTTAB(xt-14,1):" :CHR$(64+xcx)
":":PRINTTAB(xt-17,2):SPC(9):PROCc:PRI
NTTAB(xt-17,2):c$(xcx,0)
820PROCc
830FORycx=1TO20
840IFc(0,ycx)=0GOTO920
850IFc(xcx,ycx)=0ANDc$(xcx,ycx)=""PRIN
TTAB(xt-13,ycx+2)*0.00:GOTO920
860f=c$(xcx,ycx)
870IFf<>" "PROCc:GOTO920
880IFx<1GOTO920
890=INT(LOG(ABS(c(xcx,ycx))))+4
900IFc(xcx,ycx)(1)=4
910PRINTTAB(xt-1-9,ycx+2):c(xcx,ycx)
920NEXT:NEXT
930090A:090A:VDU7:VDU19,1,0;0;:PRINTT
AB(22,0)SPC(15):ix=0:PROCc:ENDPROC
1000DEF PROCpic
1010DEF PROCpdc
1020IF px=0VDU7:PROCc:ENDPROC
1030px=px-1
1040VDU28,19,23,39,2:CLS:VDU28,0,24,39,
1
1050ix=1
1060PROCpdc
1070ENDPROC
1080DEF PROCcs
1090ONERRORPROCmenu
1100PRINTTAB(xc,y):k$
1110c$=GET$
1120*FX15
1130PRINTTAB(xc,y):" "
1140IFc$="2"ORc$=CHR$(136):xc=xc-11
1150IFc$="X"ORc$=CHR$(137):xc=xc+11
1160IF(c$="7"ORc$=CHR$(138))ANDyc<22R
EPEAT:yc=yc+1:UNTILyc=22OR(c(0,yc-2)=1:IF

```

# Programming: BBC/Electron

```

yX:=2*AND(0,yX)-0yX:=VDU1
1170IFco#="":ORco#:=CHR$(139)REPEAT:yXy
X:=1:UNTILc(0,yX)-10RyX=2
1180IFco#="":PROCp:=PROCc
1190IFco#="":PROCp:=ENDPROC
1200IFco#="N":PROCnst
1210IFco#="C":PROCnc1
1220IFco#="R":PROCnr
1230IFco#="P":PROCno
1240IFco#="F":PROCfma
1250IFINSTR("###"()*)>0pX:=ASC(co
5)-34:PROCpdc:=ENDPROC
1260IFco#="P":PROCscr
1270IFco#="U":PROCup
1280IFco#="0":ONERROROFF:PROCmen:=ENDPROC
C
1290IFco#="S":PROCcopy
1300IFco#:=CHR$(135)PROCcopy
1310IFco#="T":UX:=NOTUX
1320IFco#="A":ad:=NOTad
1330IFad=0PROCc:=PRINTAB(15,1)*:PROCc
:ELSE PRINTAB(15,1)*
1340IFUX(0PROCc:=PRINTAB(10,1)* ON "PR
OCc:ELSE PRINTAB(10,1)* OFF"
1350IFxX<18xX=18
1360IFyX<22yX=22
1370IFxX<29xX=29
1380IFyX<3yX=3
1390PRINTAB(xX,yX)k$
1400GOTO1110
1410ENDPROC
1420DEF PROCnst
1430b#=""
1440REPEAT:PRINTAB(3,0)SPC(20):PRINTA
B(3,0)"Name...":PRINTb#z#:=GET#b#:=b#z#
#;UNTILz#:=CHR$(13)ORLEN(b#)>100Rz#:=CHR$(
127)
1450IFz#:=CHR$(127)b#:=LEFT$(b#,LEN(b#)-2
):GOTO1440
1460c#(0,0)b#:=PRINTAB(3,0):SPC(30):PR
INTAB(3,0):c#(0,0)
1470PRINTAB(17,0)CHR$(229)
1480ENDPROC
1490DEF PROCnr
1500PROCc
1510xX:=0yX:=0
1520yX:=yX-2
1530PRINTAB(0,yX+2)k$
1540co1#:=GET#
1550IFco1#(<)CHR$(138)ANDco1#(>)CHR$(139)
ANDINSTR(" /: ",co1#)=0PRINTAB(0,yX+2)
ANDINSTR(" /: ",co1#)=0PRINTAB(0,yX+2)
:":PROCc:=ENDPROC
1560FX15
1570PRINTAB(0,yX+2):" "
1580IFco1#:=":ORco1#:=CHR$(139)yX:=yX-1
1590IFco1#:=":ORco1#:=CHR$(138)yX:=yX+1
1600IFyX<20yX=20
1610IFyX<1yX=1
1620b#=""z#=""
1630IFco1#="L":VDU1:PRINTSPC(16):VDU1:
PRINTAB(0,yX+2):" ":yX:SPC(2-INT(LOG(
yX))):STRING$(12,CHR$(225)):c#(0,yX)=S
TRING$(12,CHR$(225)):c(0,yX)=GOTO1680
1640IFco1#="":VDU1:PRINTSPC(16):PROCc
PRINTAB(1,yX+2)*?:PROCc:REPEAT:PRINT
AB(2,yX+2)b#:=z#:=GET#b#:=b#z#:=UNTILz#:=C
HR$(13)ORLEN(b#)>100Rz#:=CHR$(127):c#(0,y
X)=b#:=PRINTAB(0,yX+2):" ":yX:STRING$
(2-INT(LOG(yX)), "_"):b#
1650IFco1#="":ANDz#:=CHR$(127)b#:=LEFT$(b
#,LEN(b#)-2):GOTO1640
1660IFco1#="":c(0,yX)=1
1670IFc#(0,yX)=":ORc#(0,yX)=CHR$(131)O
RLEFT$(c#(0,yX),1)=CHR$(95)c(0,yX)=0
1680IFco1#="":ORco1#="L":ANDyX<20yX=
yX+1
1690GOTO1530
1700ENDPROC
1710DEF PROCnc1
1720xX:=21:b#=""z#=""
1730PRINTAB(xX,1)k$
1740row#:=GET#
1750IFrow#:=CHR$(136)ANDrow#(>)CHR$(137)
ANDINSTR(" X",row#)=0PRINTAB(xX,1)*":
xX:=18:ENDPROC
1760PRINTAB(xX,1):" "
1770IFrow#="2":ORrow#:=CHR$(136)xX:=xX-11
1780IFrow#="X":ORrow#:=CHR$(137)xX:=xX+11
1790IFrow#="":PRINTAB(xX-3,2)SPC(10):P
RINTAB(xX-3,2)*?:PROCc:REPEAT:PRINTAB
(xX-2,2)b#:=z#:=GET#b#:=b#z#:=UNTILz#:=CHR$
(13)ORLEN(b#)>100Rz#:=CHR$(127):c#(115+
(xX-21)/11)+(pX+2),0)b#:=PROCc:PRINTAB(
xX-3,2)*" "
1800IF row#="":ANDz#:=CHR$(127)b#:=LEFT$(
b#,LEN(b#)-2):GOTO1790
1810IFrow#="":xX:=xX+11:b#=""
1820IFxX<33xX=18:ENDPROC
1830IFxX<21xX=21
1840FX15
1850GOTO1730
1860ENDPROC
1870DEF PROCino
1880aX:=(xX-10)/15+(0X+21)

```

# Programming: Commodore 64

## Tape to Disc

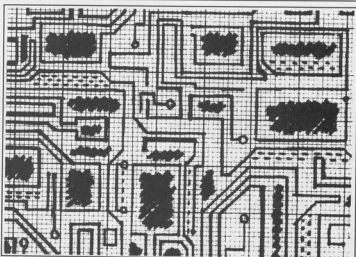
A Millet

This program is very useful for copying Basic and machine code programs from cassette to disc as it automatically deals with routines in any memory location. It also shows you where the program starts and ends.

Once run the program asks you how many files you wish to transfer; if you're not sure just enter a large number then you can put your feet up.

If you select only one program to copy you will be given the option to change the filename and save the cassette buffer after loading (useful for interrogating programs)

Tape to disc will not work with non-standard turbo loaders or sequential files so software publishers need not worry.



```

100 PRINT"TAPE TO DISK TRANSFER (-) 1.ILLETT
110 POKE5,0:POKE56,PEEK(46)+2:CLR
115 INPUT"ENTER NO. TO TRANSFER 1000";NC:N9=NC
116 IFNC<1THEN120
117 PRINT"HAVE CASSETTE BUFFER ON EACH ONE ? (Y/N)"
118 GETS9$:IFS9$<"Y"ANDS9$<"N"THEN118
120 HMEM=PEEK(56)+1
130 GOSUB9000
200 PRINT"INSERT CASSETTE & DISK & HIT 1000"
210 GETA$:IFA$<" " THEN210
220 SYS57812"";1
230 POKE780,0:POKE781,0:POKE782,HMEM
235 PRINT"1000GOT02400";
237 POKE198,1:POKE631,13:END
240 SYS722
250 F$="":FORX=833T0848:F$=F$+CHR$(PEEK(X)):NEXT
252 IFRIGHT$(F$,1)=" " THENF$=LEFT$(F$,LEN(F$)-1):GOT0252
255 PRINT:PRINT"LOADED "CHR$(34)F$CHR$(34)
260 A=PEEK(829)+PEEK(830)*256:GOSUB1000:BEG=A
270 PRINTPEEK(828)"",PEEK(829)"",PEEK(830)"",PEEK(831)"",PEEK(832)"",F$A$;
280 A=PEEK(831)+PEEK(832)*256:LN=A-BEG:GOSUB1000:PRINT"-*A$
290 A=LN:GOSUB1000:PRINT"LENGTH"LN"($A$") BYTES, 1="ST
295 IFST>0THENPRINT"LOAD ERROR!":IFNC>1THENPRINT"TRANSFER ABORTED!":END
297 IFNC>1THENN$=F$:S$=S9$:GOT0325
300 N$="":INPUT"NEW FILENAME (RET=OLD)";N$:IFN$=" " THENN$=F$
310 PRINT"HAVE TAPE BUFFER ? Y/N THEN INSERT DISK.
320 GETS$
325 IFS$="N"THEN400
330 IFS$<"Y"THEN320
340 PRINT"AVING"CHR$(34)N$+" "CHR$(34)
345 SYS(57812)N$+" ",8
350 POKE780,2:POKE2,60:POKE3,3:POKE781,251:POKE782,3
360 SYS704
400 PRINT"AVING"CHR$(34)N$CHR$(34)
405 SYS(57812)N$,8
410 POKE780,2:POKE2,0:POKE3,HMEM:POKE781,LN-INT(LN/256)*256:POKE782,HMEM+LN/256
420 SYS704
500 PRINT:PRINT"-INAL TOUCHES":GOSUB2000
510 IFER=0ANDN9>1THENN9=N9-1:GOT0220
900 PRINT"ALL DONE !!!"
990 END
1000 REM A$=HEX$(A)
1010 A$="":A1=A
1020 A$=MID$(A,"0123456789ABCDEF",A1-INT(A1/16)*16+1,1)+A$
1030 A1=INT(A1/16):IFR1THEN1020
1090 RETURN
2000 REM FIND T,S OF FIRST BLOCK N$
2005 ER=0
2010 OPEN1,8,15:OPEN2,8,2,"#"
2020 PRINT#1,"U1 2 0 18 0"
2030 PRINT#1,"B-P 2 0"
2035 GET#2,A$,B$:T=ASC(A$+Z$):S=ASC(B$+Z$)
2040 IFT=0ANDS=255THEN2500
2050 PRINT#1,"U1 2 0 0";T:S:P=3
2055 PRINT#1,"B-P 2 0"
2060 GET#2,T$,S$
2070 F$="":FORX=1T016:GET#2,A$:IFA$<" " THENF$=F$+A$
2080 NEXT
2090 IFF$=N$THEN2200
2100 P=P+32:IFP>255THEN2030
2110 GOT02055
2200 PRINT#1,"U1 2 0"ASC(T$+Z$)ASC(S$+Z$)
2210 PRINT#1,"B-P 2 2":GET#2,A$,B$
2220 A=ASC(A$+Z$)+ASC(B$+Z$)*256
2230 IFAC>HMEM*256THEN2500
2240 PRINT#1,"B-P 2 2"
2250 PRINT#2,CHR$(BEG-INT(BEG/256)*256)CHR$(BEG/256)
2260 PRINT#1,"U2 2 0"ASC(T$+Z$)ASC(S$+Z$)

```



## Programming: Commodore 64

```
2270 REM DONE!!
2450 CLOSE2:CLOSE1
2490 RETURN
2500 ER=1:PRINT"Error:GOTO2450
9000 RESTORE:FORX=704TO751:READA:POKEA,A:NEXT
9100 Z#=CHR$(0)
9400 FORX=224TO255
9410 POKE744,X:POKE747,X:SYS740
9420 NEXT
9430 POKE62828,76:POKE62829,125:POKE62830,245
9440 REM #F56C JMP #F57D
9490 RETURN
10000 DATA72,165,1,41,254,133,1,104,32,216,255,165,1,9,1,133,1,96
10010 DATA72,165,1,41,253,133,1,104,32,213,255,165,1,9,2,133,1,96
10020 DATA162,0,189,0,224,157,0,224,232,208,247,96
READY,
```

## Programming: Amstrad CPC

### Abbreviations For Keywords

Alastair Scott

**W**ith this program you can save a lot of typing time. Running it will produce a list of letters to screen or printer with a keyword oppo-

sition each one. When the 'Ready' prompt appears, typing Control plus the letter will result in the keyword being produced.

For example, *Ctrl - A* produces *AscI*.

This facility remains until the computer is reset or you type *Call &BBOO*. The only drawback is that you cannot redefine any keys or you will lose the definitions.

```
100 'Abbreviated Keywords
110 'by Alastair Scott
120 MODE 1:CALL &BC02:PAPER 0
130 ZONE 20:CALL &B800
140 FOR addr=&BEF0 TO &BEF8
150 READ hx$:POKE addr,VAL("&"+hx$)
160 NEXT:CALL &BEF0
170 PEN 1:LOCATE 4,8:PRINT"Output to scr
    een or printer? (S/P)"
180 op$="":WHILE op$=""AND op$<"p":op
    $=LOWER$(INKEY$):WEND
190 SOUND 1,25,s=8*ABS(op$="p")
200 PEN 3:CLS:PRINT$, "Use CONTROL+lette
    r for abbreviation":PRINT$
210 FOR keys=128 TO 159
220 READ word$,lower,upper,number
230 KEY DEF number,1,lower,upper,keys
240 KEY keys,word$
250 PEN 2:PRINT$,USING" \ \\";wor
```

```
d$:
260 PEN 1:PRINT$,CHR$(upper),
270 NEXT
280 FOR num=48 TO 57:READ pad:KEY DEF pa
    d,0,num,num,num:NEXT
290 KEY DEF 7,0,46,46,46:KEY DEF 6,0,13,
    13,13
300 PRINT$:SOUND 1,50:END
310 DATA01,00,BF,21,FF,00,C3,15,BB
320 DATAASC(,97,65,69,"BORDER ",98,66,54
330 DATACHR(,99,67,62,"DATA ",100,68,61
340 DATA"ELSE ",101,69,58,"FOR ",102,70,
    53
350 DATA"GO SUB ",103,71,52,HEX(,104,72,
    44
360 DATAINKEY,105,73,35,"READ ",106,74,4
    5
370 DATA"KEY ",107,75,37,"LOCATE ",108,7
    6,36
```

```
380 DATA"MOVE ",109,77,38,NEXT,110,78,46
390 DATA"LIST ",111,79,34,"PLOT ",112,80,
    27
400 DATA"GOTO ",113,81,67,RETURN,114,82,
    50
410 DATA"SYMBOL ",115,83,60,"THEN ",116,
    84,51
420 DATA"USING ",117,85,42,"DRAW ",118,8
    6,55
430 DATAWINDOW,119,87,59,LEFT(,120,88,6
    3
440 DATAMID(,121,89,43,RIGHT(,122,90,7
    1
450 DATA"WHILE ",91,123,17,MEND,93,125,1
    9
460 DATARUN,64,124,26,"EDIT ",94,163,24
470 DATARENUM,58,42,29,AUTO,59,43,28
480 DATA15,13,14,5,20,12,4,10,11,3
```

## Programming: Spectrum

### Spherical objects

Geoffrey Wearmouth

**T**his program for any model Spectrum takes an ordinary screen picture and processes it into a spherical shape. This strange design can then be saved to tape, or printed out, and be loaded into most graphics packages, including the Art Studio, for

manipulation.

After running the program a menu appears at the bottom of the screen. Pressing *L* will load in the screen you wish to transform. Then, press *G* to start the process, a radius of 81 is recommended, and sit back and wait for the

screen to be redrawn. It takes around eight minutes on average.

Once drawn the screen can be dumped to any printer accepting the *Copy* command on a 48k Spectrum or an Epson compatible on a 128k/Plus 2, or saved for use in art type programs.

```

1 REM *****
2 REM *           SPHERE           *
3 REM *           G. Wearmouth.    *
4 REM *           1986.             *
5 REM * Spectrum 16/48/128K *
6 REM *****
7 REM
10 IF PEEK 26618<201 THEN CLEAR 2647
5: PRINT "installation": GO SUB 9000

```

```

20 PRINT #0;AT 1,0; PAPER 4;"Load Save
Print Border Circle Go"
30 LET a=CODE INKEY$: IF a>97 THEN LE
T a=a-32
40 GO SUB 100+a: GO TO 20
165 RETURN
166 PLOT 0,0: DRAW 255,0: DRAW 0,175: D
RAW -255,0: DRAW 0,-175: RETURN
167 CIRCLE 127.5,87.5,PEEK 26489
170 RETURN
171 INPUT "Radius (10-88) ";r: POKE 264
89,r: CLS : PRINT #0;AT 0,10;"radius - "
;r: RANDOMIZE USR 26488
175 RETURN
176 INPUT " Title ";t$: PRINT #0;" Star
t tape": LOAD t$SCREEN$: RANDOMIZE USR
26476
179 RETURN
180 COPY
182 RETURN
183 INPUT " Title ";t$: SAVE t$SCREEN$
999 RETURN
9000 REM ** Machine Code **
9001 REM

```

```

9010 LET a=26476: LET b=0
9020 FOR i=1 TO 18: READ t$
9030 FOR j=1 TO 8
9040 LET b=b+(CODE t$(48-(7 AND t$)-"A"
))
9050 LET b=b+(CODE t$(2)-48-(7 AND t$(2)
)-"A"))
9060 POKE a,b: LET a=a+1: LET s=s+b
9070 LET t=t$(3 TO )
9080 NEXT j
9090 NEXT i
9100 IF s<13660 THEN PRINT "Data error
": STOP
9110 CLS : RETURN
9200 DATA "2100401100680100"
9210 DATA "18EDB0C93E51CD28"
9220 DATA "2DEFA203C5A0C402"
9230 DATA "1B3134372F0F38CD"
9240 DATA "D52DFD77703A085C"
9250 DATA "FE20CAC516EF3131"
9260 DATA "E50522A305A10F34"
9270 DATA "372F04013104E531"
9280 DATA "04010328C30238CD"
9290 DATA "D52D4847CDA4223E"
9300 DATA "2884670620C50608"
9310 DATA "C5CB06301AE5EF34"
9320 DATA "377F31E40105A304"
9330 DATA "20E3040338CDA22D"
9340 DATA "FD4670CDE922E1FD"
9350 DATA "346EC110DB2CC110"
9360 DATA "D4EF31360090A103"
9370 DATA "3137008A0238C900"

```

## Programming: QL

### Front End Cataloguing

Gareth Morgan

**T**his program, when run catalogues a disc and displays a number next to each entry so that loading

programs becomes extremely simple. If you install a Boot file to automatically

load Front End then program selection is considerably speeded up.

```

100 MODE 4:PAPER 0:CLS:INKEY$:INKEY$:BORDER#0:2,2
110 OPEN#4:scr_512x216a0x0:BORDER#4:2,2:CLS#4:CLS#0
120 PRINT #0;"Accessing microdrive"
130 n$="mdv1_dir_temp"
140 OPEN_NEW #5,n$
150 DIR #5,mdv1_
160 CLOSE#5
170 dir_ptr
180 OPEN_IN#5,n$
210 INPUT#0;"TYPE TITLE NUMBER -- 'strum
220 IF tnum<count THEN CLS#0:GO TO 210:END IF
230 findt:PRINT #0;"Loading "a$:"...":PAUSE 10:CLOSE#5:DELETE n$
240 BORDER#4:CLS#4:CLOSE#4
250 LRUN "mdv1_"a$
260 :
270 DEFINE PROCEDURE dir_ptr
280 OPEN_IN#5,n$
290 INPUT #5:a$:a$
300 y=0:x=1:count=1

```

```

310 REPEAT loop
320 IF y=20 THEN x=x+20:y=0:END IF
330 AT#4:y,x
340 IF EOF(#5) THEN EXIT loop:END IF :INPUT#5:a$
350 IF a$="boot" OR a$="DIR_temp" THEN GO TO 340
360 PRINT#4:count;" :a$:count:count+1
370 y=y+1
380 END REPEAT loop
390 CLOSE#5
400 END DEFINE
410 :
420 DEFINE PROCEDURE findt
430 f=1:INPUT#5:a$:a$
440 REPEAT loop1
450 INPUT #5:a$
460 IF a$="boot" OR a$="DIR_temp" THEN GO TO 450
470 f=f+1:IF f=1:tnum THEN EXIT loop1
480 END REPEAT loop1
490 END DEFINE

```

## QL Dump

M C Ogier

This short QL program dumps the screen to an Epson LX-80 printer. Depending on the measure of 'Epson compatibility' it should work with any compatible printer.

```
100 OPEN #4,ser1: PRINT #4; CHR$(27);  
CHR$(51); CHR$(24);  
110 FOR g=0 TO 127 STEP 2  
120 PRINT #4; CHR$(13); CHR$(10);  
CHR$(27); '*'; CHR$(0); CHR$(0); CHR$(1);  
130 FOR f=163712+g TO 131072+g STEP -  
128: PRINT #4; CHR$(PEEK(f));  
140 NEXT g: CLOSE #4
```

## Unlocker

Alan Griffiths

This program for the BBC micro allows locked cassette files to be loaded into the computer, instead of having to use \*Run.

It does this by using event number four to poke &FE into location &3CA as the locked program is loading.

```
10REM** BY ALAN GRIFFITHS 1986 **  
20:  
30FOR A=0 TO 2 STEP 2  
40P%=&0C00  
50[OPT A  
60PHP:PHA:TXA:PHA:TYA:PHA  
70LDA &3CA  
80AND #&FE  
90STA &3CA  
100PLA:TAY:PLA:TAX:PLA:PLP  
110RTS  
120]NEXT  
130?&220=0  
140?&221=&0C  
150*FX14,4  
160CLS  
170PRINT'"YOU MAY NOW LOAD YOUR PROGRA  
M NORMALLY"'  
180END
```

## Colour Access

N D Clark

This Atari ST program allows Basic to display any of the 512 colours available; something there is no command for.

The variables *colno* (0 to 3 in medium res, 0 to 15 in low res), red, green and blue should be set before the routine is called. Suitable values for red, green and blue lies between zero and 999.

```
30000 SETCOLOUR:POKE INTIN,COLNO  
30010 POKE INTIN+2,RED  
30020 POKE INTIN+4,GREEN  
30030 POKE INTIN+6,BLUE  
30040 POKE CONTRL,14  
30050 POKE CONTRL+2,0  
30060 POKE CONTRL+6,4  
30070 VDISYS(1)  
30080 RETURN
```

## We want your programs

Yes, this is your chance to get rich and famous. Well, famous anyway, as *Popular Computing Weekly* is looking for contributions to the Programming pages.

What sort of thing are we looking for? You name it - anything original from games to utilities, applications and the like, written in Basic, machine code or anything else you can think of.

Programs for any computer will be considered, not just the old faithfuls

(Spectrum, Amstrad, QL, Commodore, etc), so send your listings in for your favourite micro. What we need is a working copy of the program on tape or disc, plus an accompanying article or documentation that you would anticipate going with the piece, normally not over 2000 words.

Alternatively, send in your short programs to the Bytes and Pieces page - what could be easier? In return, we'll pay the princely sum of £25 per page for the

main programming pages and £10 for each Bytes & Pieces contribution we publish. Plus the fact that your name will be indelibly carved in the *Popular Computing Weekly* Hall of Fame till time immemorial. What more could any true programmer ask?

Just send your masterpieces in to Duncan Evans, Technical Editor, *Popular Computing Weekly*, 12-13 Little Newport St, London WC2H 7PP and he'll assess them post haste.

# ATARI

## MORE ST FOR LESS £'s

### ATARI

1040 STF + 1 meg RAM + 1 meg d/d + mono monitor  
1040 STF + 1 meg RAM + 1 meg d/d + col. monitor  
520 STM, 512K RAM  
520 STM, 512K RAM + 1/2 meg disk drive  
(Standard in all ST packs is Gem (Rom), TOS (Rom) + 1st Word w/p + Basic + Logo + Neochrome)

★ ★ Phone for this week's lowest prices ★ ★

20 meg hard disk drive £688.00  
\* 1 meg Cumana disk drive £155.00  
\* 2 meg Cumana disk drive £285.00  
(\* These include a built-in power supply)  
Philips 8533 med. res. col. monitor £309.00

### ST SOFTWARE

VIP Spreadsheet + K. Spread £184.00  
DBase II £48.95  
Chipsoft Accounts £115.00  
db MAN £144.00  
Starplider £113.00  
Chess (Pisces) £24.95  
130XE + 2049ev + Free joystick £24.95  
130XE + XC12 + 2 pos. s/w + £129.00  
2049ev + joystick £169.00  
130XE + 1050 disk drive £249.00  
XMM 801 printer £169.00  
Touchtablet £29.00  
10 DS/DD library box £12.99

SOFTWARE  
ON CARTRIDGE,  
DISK OR  
CASSETTE  
FROM £1.99

FULL RANGE OF  
HARDWARE,  
SOFTWARE,  
PRINTERS,  
RIBBONS etc.

Halve your disk  
cost use the  
b-side with disk  
notcher  
£5.99

AMSTRAD/  
SPECTRUM 128  
with software  
+ JOYSTICK  
£159.00

**WOOTTON COMPUTERS**  
(Dept PCW), 116 EDELESTON ROAD, CREWE  
CHESHIRE CW2 7HD

Tel: 0270 214118

All subject to availability. All prices inc. VAT. All orders £100.00 or over carriage free. Orders below P&P extra, please enquire. S.A.E. for lists.



The  
exciting  
NEW  
RELEASE  
from

# ANGLOSOFT

WHAT THE PRESS SAID

## Graphics, 8: Sound, 8: Value, 8: Playability, 8: ##

COMPUTER AND VIDEO GAMES

## This is one of the most original games to emerge this year... high quality gameplay makes this fully deserve a MEGA. Great value! Buy it now! ## C.C.I. Sept. '86

## The action can be fast and furious or cool and calculated, the choice is yours!... Droids is a highly playable game with plenty of mental challenge as well as arcade action. ##

COMMODORE USER SEPT. '86

Droids is a nicely-produced arcade adventure with elements of Hewson's Parodius and Epyx's Impossible Mission. The graphics are big and colourful and the programming is pleasantly fast and smooth... Good fun. ##

POPULAR COMPUTING WEEKLY Sept. 25 '86

AVAILABLE NOW FROM YOUR LOCAL DEALER OR SEND  
CHEQUE/P.O. TO ANGLOSOFT, P.O. BOX 60, COVENTRY (PRICES  
INCLUDE P&P).

**£7.95** Cassette **£9.95** Disk



# FREE GAME

## when you subscribe to POPULAR Computing WEEKLY

Your choice of any one of the games listed below is free  
when you subscribe to Popular Computing Weekly

Please enter my annual subscription to Popular Computing Weekly at £25.00 U.K. (£39.95 Overseas), and send my free game as marked below.

Commodore 64

☐ Willow Pattern  
☐ Chicken Chase

Amstrad

☐ Don't Panic  
☐ Chimeria

Spectrum

☐ Willow Pattern  
☐ Chicken Chase

BBC Micro B

☐ Fat Man Sam  
☐ Microcosm

☐ I enclose a cheque made payable to Sunshine Publications Ltd.

☐ Please charge my Visa/Access card No:

Expiry Date:

Name:  Address:

Computers owned:  Age:

Return this form together with your payment to: PCW Subs, 12-13 Little Newport St., London WC2H 7PP (Allow 28 days for delivery).

Another great new game from  
**Bubble Bus**

NOW  
AVAILABLE  
ON ATARI  
AND MSX

# VALKYRIE

NOW  
AVAILABLE  
ON ATARI  
AND MSX

By Stephen Crow  
Author of Wizard's Lair

SPECTRUM 48K  
COMMODORE 8 AMSTRAD

Stephen Crow  
Programmer of the Year  
C: VG Golden Joystick

**bubble bus software**

87 High Street, Tonbridge, Kent TN11 1RX  
Telephone: 0732 355962 Telex: 95151

## DIRECT TECHNOLOGY (UK)

ATARI HARDWARE - AT MORE THAN REALISTIC PRICES!!!

★ ★ ALL PRICES INCLUDE VAT & FREE COURIER DELIVERY SERVICE ★ ★

520 ST-M (512KB with modulator)	£299.00
1040 ST-F (1MB with hi-res mono monitor SM 125)	£775.00
1040 ST-F (1MB with med-res colour monitor SC 1224)	£950.00
SM 125 (12" hi-res mono monitor)	£149.00
CM 36512 (14" lo-res colour monitor)	£270.00
SC 1224 (12" med-res colour monitor)	£360.00
SF 354 (512KB 3-5" floppy-disc drive)	£149.00
SF 314 (1MB 3-5" floppy-disc drive)	£185.00
SH 204 (20MB Winchester hard-disc drive)	£622.00

## CITIZEN PRINTERS - AT MORE THAN REALISTIC PRICES!!!

120-D (Dot matrix - 120cps/80clms/25cps NLQ + F/T)	£200.00
LSP 10 (Dot matrix - 120cps/80clms/25cps NLQ + F/T)	£280.00
MSP 10E (Dot matrix - 160cps/80clms/25cps CO + F/T)	£365.00
MSP 15E (Dot matrix - 160cps/132clms/25cps CO + F/T)	£470.00
PREMIER 35 (Letter quality - 35cps/136clms)	£689.00

THESE ARE JUST SOME OF THE GREAT DEALS YOU CAN PICK UP TODAY

★ ★ ★ DON'T FORGET!!! ★ ★ ★

FOR THE BEST DEALS ON ANYTHING - CALL DIRECT  
TECHNOLOGY (UK)

TELEPHONE: 01-361 2484

OR WRITE:

**DIRECT TECHNOLOGY (UK)**

35 The Homesteads  
Waterfall Road  
London N11 1LH

## FREELANCE PROGRAMMERS..

TOP RATES! BEST PROJECTS!  
WORLD'S No. 1 SOFTWARE PUBLISHERS

Let's face it, everyone says that. The difference is, we can prove it to you. Now, can you prove you're up to it...?

- FACT** The ACTIVISION group includes such household names as Infocom, Electric Dreams and Gamestar in addition to Activision itself.
- FACT** ACTIVISION is producing for and selling software in every major software market in the World - inc. U.S.A., Germany, Japan, France, Australia, Canada etc, not forgetting good old G.B.
- FACT** The ACTIVISION group is the longest established and most successful home computer software publisher in the World (you know, the one we live in!)
- FACT** ACTIVISION supports software houses - we can offer use of our worldwide marketing and distribution expertise to other companies - labels currently distributed by us include System 3 and Loriciels.
- FACT** ACTIVISION has set-up a crack software development group dedicated to supporting those freelance developers working on projects for the Activision group.
- FACT** The ACTIVISION group releases the world's top range of software, both original and licensed, for the areas of entertainment, creativity and productivity. Titles include SPINWIZZY, GHOSTBUSTERS, LITTLE COMPUTER PEOPLE, THE MUSIC STUDIO, ALIENS, BALLBLAZER, HACKER II and PAINTWORKS.
- FACT** If you can code proficiently in 6502, Z80 or 68000, you should contact us immediately.
- FACT** If you're up to it, you'll work on some of the most exciting software projects in the World.

Software Studios, Activision (UK) Limited

Activision House, 23 Pond Street, Hampstead, London NW3 2PN  
Tel: 01 433 1801 - 01 433 2666 Telex: 21485

# COMPUTEC

## MUSIC UK - (0902) 405100

## HARDWARE

Prophet 5 to MIDI interface £100 inc VAT  
Chroma to MIDI interface £299 inc VAT  
DX Voice Vault  
Decillionix The Box  
DX7 ROMs from Skyslip and Ritar  
Shadow GTM6 guitar to MIDI

## SOFTWARE

Steinberg Syntech Passport C.Lab Joreth  
Microvoz Treasoft DHCP Lemi MIDI soft  
XRI Systems Icon Cheetha Roland Etc.  
Roland JX8P Editor for the Commodore  
Prophet 2000 Editor for the Commodore

Overseas Customers Welcome  
UK Send Cheque or PO for £1, Overseas send £2  
International Money Order, for facts pack and price list.  
Refund on purchase  
\* The only music-software specialists in the country \*

24 HIGH ST., BROCKMOOR, BRIERLEY HILL,  
WEST MIDLANDS DY5 3JA



**With Kenn Garroch**

## Spectrum plus or minus?

*Vic Jordan, of Burnley, Lancs, writes:*

**Q** I have read with interest any comments you have printed about the new Spectrum Plus 2.

Being an owner of the old type 48, I get more enjoyment from writing my own (very basic) programs.

Your magazine seems to refer to the Plus 2 as more of a games machine and not really suitable for programming in 48. Could you explain the difference between programming in 48 and 128, and if the Plus 2 would be a good buy for someone like me who doesn't play many games?

**A** The old 48K Spectrum is programmed in Basic using the single key-stroke per command system, ie, one key for *Run*, one for *Goto* etc. The 128 and Plus 2 have the more normal method of typing in each keyword in full plus a number of new commands. The Plus 2 also has the advantage that its keyboard is a vast improvement over the Spectrum's Plus (One), and 128, and a mega improvement over the old 48K. It also has more memory and is downwardly compatible - ie, software from earlier machines will run on it.

Whether it is good for programming or not depends on whether you really like using the Sinclair Basic which is

very non standard and, in some ways, difficult to use. If you are thinking of changing machines, you may be better off buying an Amstrad 464 which although it costs £199 compared with the Plus 2 at £139, comes with a monochrome monitor, reasonable keyboard, and standard upgrades for disc, RS232 etc.

The Basic in the Amstrad is much more standard and is quite a lot better than that of the Sinclair, the games available for it are similar to those appearing on the Spectrum, in fact it is a better machine. So, if you are splashing out on a new computer, take a look around, and see what special offers are on.

## Computer choices

*Simon Vause of Brotherton, West Yorks, writes:*

**Q** I am thinking of buying a new computer. After viewing the various machines on the market, I have chosen two computers that seem to fit my needs. The Atari 520ST and the new BBC Master Compact from Acorn.

I wish to use the computer for programming in different languages, especially Cobol. I also wish to use business software and write business graphics and games programs.

Could you advise me which computer you think is the best for what I wish to use it for?

**A** Looking at the two systems, the first thing to take into account is what you get for your money. The Master Compact comes with single drive, colour monitor, front end (not Gem but near enough), and bundled software including *Word*, *Card Index*, *Logo*, and BBC Basic all for about £700.

The Atari 520ST has a disc drive, colour monitor, Gem, and bundled software including 1st Word, DR Personal Basic, DR Logo, and Neo-

chrome (colour graphics package) for about £850. With both machines, there is a good chance that you'll pay less than this and/or get some more software thrown in, especially with the ST. But considering what you get for your basic system, the pricing is about the same, the ST is a faster and more flexible machine than the Compact which should be taken into account when comparing the prices.

For programming languages, the BBC is still probably the better machine since there is a version of virtually every language under the sun available for it, although most of these are not full implementations. However, the ST is catching up fast and with the Macintosh and PC emulators that are becoming available for it, you should be able to get almost any language to run.

If you want to write business software, it depends on whether you want to use machine code or not, the Compact uses the good old 6502 which is fairly easy to program with but is very old fashioned compared to the 68000 which, although it may look more difficult at first sight, is actually much more flexible and easier to use, once you get the hang of it. If you are going to be programming in a high level language then either machine will do but remember that the ST has more Ram space so the programs won't generally need to do as much disc accessing and so will be faster.

For graphics, as far as I'm concerned, the ST wins hands down. It has more colours in a higher resolution than the Compact, and with its extra speed, can manoeuvre them faster. If it's graphics applications you want then the ST is the machine you should buy.

If you are going to be writing games, the ST is much more marketable than the Compact simply because

there are probably more ST's around than there are Compacts.

It is also seen as much more of a games machine with its mega graphics, reasonable sound and general market stance.

Overall, you would probably be better off with the ST for your needs than the Master Compact. You might, however, take a look at the Amstrad IBM PC clone since this probably fits the bill as well but is more businessy than the ST. In the end, it's your choice and you should get with the machine you feel happiest with.

## Saving to disc

*Rob Winchester of Peterborough, Cambs, writes:*

**Q** I have just acquired a secondhand BBC B micro and am playing around with the excellent graphics features of the machine. One thing that I would like to do is to save whole screens to disc. Could you explain how this is done?

**A** Easy, simply find out *Himem* for the particular mode you are in, subtract this from &8000 and find the Hex result, ie,

```
PRINT -&8000-HIMEM.HIMEM
then use *SAVE fnm 7000+400 for
mode 7
*SAVE fnm 6000+2000 for mode 6
*SAVE fnm 5800+2800 for modes
5 and 4
*SAVE fnm 4000+4000 for mode 3
*SAVE fnm 3000+5000 for modes
2, 1, and 0
```

The *fnm* is the file name you want to use, the first figure is the hex start address (*Himem*) and the figure after the plus is the length of the screen, in hex (&8000-*Himem*).

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek it* to Kenn Garroch and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke*, PCW, 12-13 Little Newport Street, London WC2R 3LD



## The hotline on new books

*David Wallin gets literary, and has some recommendations for comms books*

If you've been reading this column regularly and feel you'd like to go deeper into any of the topics we discuss, you may like to consider some of the books on communications which are now available.

We'll discuss a number of new books as they come out, but for the moment, anyone who wants a detailed guide covering all aspects of getting to grips with comms could hardly do better than buy one of my own personal favourites!

*Hotline - a Personal Guide to Computer Communications*, by Ben Knox. It's by no means new - about a year old and therefore it's getting a little out of date. However, *Hotline* has everything you need to get into communications via the phone lines, in its 141 pages (14 chapters and five appendices).

It begins with a preface from the author, saying that the book assumes some experience of computers (having read the book, I would agree that a little knowledge of computers is needed, but you should have ample of both if you read *Popular Computing Weekly* regularly). Knox also says that you shouldn't worry if you get lost with all the detail and terminology etc used in the book and that it will become clear quite quickly when you start to use on-line systems. Three or four years ago, when I first started communicating, I was totally confused by everything and the jargon to go with it, but regular communicating (and phone bills to match!) soon sorted it

all out.

The book kicks off by going into considerable detail on modems - explaining autodial and answer, speeds and duplexes, synchronous and asynchronous transmission, answer and originate modes, frequencies used, approval (and lack of it!) and finally Hayes Compatibility. As you can see, it covers just about all there is to cheapish (under £250) modems.

It does not go on to unattended modes, printer ports (like the Pace Series 4 modems), Tone and Pulse dialling and other complicated, unnecessary and confusing items of modems. However, it does not forget the good old RS232 interface, describing the history of RS232, duplex (again!), parallel and serial, and explaining all the jargon involved and what pins are called what. Incidentally, one of the appendices contains an extremely useful detailed description of the use of each pin.

Then we go on to software: downloading, speeds, word lengths, parities, Ascii, start and stop bits (complete with a diagram!) and protocols. Finally, it has a couple of pages on extra features of software such as macros, explaining what they are and do.

Simply going on-line is explained in a massive three pages (half for viewpoint and half for Ascii). Plus there's plenty of no-nonsense stuff about security. Not giving your password away, regularly changing it and all that kind of thing.

Useful, but as I said, common sense.

Skip the chapter on bulletin boards: the list was out of date when the book first came out. Some of the boards listed are closed and many more have opened.

Chapters nine and ten are all about PSS - which we've gone into in this column on a number of occasions. Details on how to join and access it (there is a list of PSS port access numbers), on IPSS and (most importantly) how much it all costs. PSS is basically a giant multiplexor network, covering most of the country. Advanced PSS: PAD commands, setting of PAD parameters and what errors can occur are also covered.

In many ways, the last two chapters are the best of all, dealing with CompuServe and The Source - America's two biggest and best known database services. Unfortunately, reading these sections is likely to make you want to join one of the services, and they are very expensive, both to join and use. If you are interested in either the Source or CompuServe then one simple piece of advice is to buy this book - it will give you lots of information about what each offers and should help you to decide which you should join.

All that remains are the five appendices, containing a list of the addresses of English database companies, a very detailed technical description of the RS232 port, a list of Ascii codes and an invaluable glossary of computer abbreviations and jargon and what they really mean in English.



Pace has released *Comstar II*, an upgrade of its BBC communications software package. The new version is £33.60, the same price as the old package, and includes new features such as pull down menus, off line editing and improved telesoftware downloading.

The package, which comes as a 16K Eeprom, is available for the BBC B and Master series. Users of the earlier version of *Comstar* will be able to obtain an upgrade.

Details from Pace Micro Technology, Juniper View, Allerton Road, Bradford BD15 7AG (0274) 488211.



# Power for Business

## 520ST PACKAGES

The 520ST-M keyboard costs only £246.96 (VAT+£399) and includes an RF monitor and cable, allowing you to connect it to an ordinary domestic TV set. The keyboard is supplied with 512K RAM, a mouse and a free set of 21" disks containing applications software. For a limited period from August 11th 1989, we have some special packs offering combinations of the 520ST-M keyboard with a 1Mbyte SP354 Atari disk drive and an Atari monitor (either the Mono M60424 or Colour CM60512). These packages offer up to £200 extra discount on a system. If purchased from Silica, they also come with our free ST STARTER KIT. All of the five packs shown in the chart include VAT.

## UPGRADE TO 1024K RAM

We are pleased to be able to offer a 1Mbyte upgrade on the standard 520ST keyboard to increase the memory from 512K to a massive 1024K. It has a full 1 year warranty and is available from Silica at an additional retail price of only £88.96 (VAT+£130). Any of the five packs can be upgraded to 1Mbyte for only £100. The 1Mbyte ST offers a low price alternative to the 1040, but also gives you the benefit of an RF modulator (not normally fitted on the 1040).

## FREE SOFTWARE

When you buy a 520 or 1040 ST computer keyboard from Silica Shop, you will receive a large and varied software package free of charge. This package consists of three programs. Whenever you purchase your Atari ST computer, you should receive the first six software files as standard. However, if you purchase your ST from us, you will also receive a further six extra files, giving you a total of twelve. All ST's now have TOS/DEM already installed on ROM, so the list of free software you should receive is as follows:

- 1) DEMO - CD Diskette environment with WIMP (used in ROM)
- 2) TOS - Transim Operating System (used in ROM)
- 3) W.D.W.O.R.D. - Word Processor by GWT using DEMO
- 4) BASIC - Personal Basic by GWT (with manual)
- 5) LOGO - Logo language by GWT (with manual)
- 6) MICROSOFT - A powerful word paint and graphics package (only available with colour systems)
- If you purchase your ST from Silica, you will also receive the standard six packs of software as listed above, but we will also give you the following six additional programs FREE OF CHARGE:
- 7) MEGACARDS - Aids to type with Megamaze
- 8) DODGLES - Simple game involving drawing packages (works on colour or colour keyboard)
- 9) CP/M EMULATOR - Allows use of many DOS/IBM software to run on the Atari keyboard
- 10) CP/M UTILITIES - Various utilities to use with CP/M
- 11) DEMONSTRATION & PUBLIC DOMAIN SOFTWARE - Various games, demos and accessories
- 12) CARDS - A unique set of cards games from Microdeal
- 13) CARDS - A unique set of cards games from Microdeal

These additional free software titles are all part of the FREE Silica ST STARTER KIT, which you will receive for further details.

## FOUR FREE MANUALS

In addition to the free software which will be given to you when you buy your ST from Silica, you will receive four free manuals:

- 1) ST OWNERS MANUAL (88 pages). Easy access to the information you require to unpack, set up and become familiar with the ST.
- 2) ST BASIC SOURCE BOOK (28 pages). A clear and simple guide to the information to increase your level of programming expertise.
- 3) ATARI LOGO SOURCE BOOK (77 pages). A source book for Logo, showing how to use the language and the WIMP environment.
- 4) 10 WORD MANUAL (48 pages) instructions for 10 Word

## £100 DISCOUNT 1 DISK DRIVE

## £150 DISCOUNT 2 DISK DRIVES + MONITOR

## £200 DISCOUNT 2 DISK DRIVES + MONITOR + PRINTER

## ALL PACKS INCLUDE VAT

## PACK 1 (MONO)

Keyboard	£399
Disk Drive	£149
Monitor	£149
Normal Price	£697
Discount	£150
Pack Price	£547

## PACK 2 (MONO)

Keyboard	£399
Disk Drive	£149
Monitor	£149
Printer (SMBMS)	£199
Normal Price	£905
Discount	£200
Pack Price	£705

## PACK 1

Keyboard	£399
Disk Drive	£149
Normal Price	£548
Discount	£150
Pack Price	£398

## PACK 3 (COLOUR)

Keyboard	£399
Disk Drive	£149
Colour Monitor	£299
Normal Price	£847
Discount	£150
Pack Price	£697

## PACK 5 (COLOUR)

Keyboard	£399
Disk Drive	£149
Colour Monitor	£299
Printer (SMBMS)	£199
Normal Price	£1195
Discount	£200
Pack Price	£995

## ST NEWSLETTER 8 PAGES OF INFORMATION TO HELP YOU TO DECIDE RETURN THE COUPON FOR A FREE COPY

## 1040ST-F

For the businessman and the more serious home user, there is the 1040ST-F with 1024K RAM. This can be used in a business environment as a stand-alone system, or can support a mainframe computer as a terminal. The 1040ST-F keyboard with integral 1Mbyte disk drive costs only £889 (VAT+£883.85). As the 1040ST-F was manufactured solely with business use in mind, it does not come with an RF modulator for use with a domestic TV. Instead, it requires a monitor. There are three Atari monitors available and the prices for the 1040 with these monitors are: 1040 Keyboard/Wideband Monitor £799 (VAT+£792.85) 1040 Keyboard + High res colour monitor £799 (VAT+£792.85) 1040 Keyboard + Low res colour monitor £599 (VAT+£592.85) 11) Colourboard - Atari colour monitor £599 (VAT+£592.85) The 1040ST-F includes 1Mbyte of RAM as well as a 1Mbyte double sided disk drive and a serial transformer, both built into the keyboard to give a compact and elegant unit, with only one mains lead. The 1040ST-F is supplied with a set of demonstration disks as well as our own FREE Silica ST STARTER PACK. Call on your nearest branch of Silica Shop for a demonstration.

1-4 The Mews, Hatherly Road, Sidcup, Kent, DA14 4DX  
117 Goringham High Street, Goringham, Kent, BA9 8JD  
Lion House (1st Floor), 287 Tottenham Court Road, London, W1A 1BB  
Battersea (1st Floor), Oxford Street, London, W1A 1AA

## REDUCED PRICES

Atari's ST personal computers are now firmly established both in the USA and Europe. The main attraction of the ST range is the value for money which these computers represent, giving both private and business users a powerful asset at a very modest price. There are now several ST packages available from Silica at a reduced price, further enhancing the Atari 'value for money' reputation. In addition, we are giving away a FREE Silica ST STARTER KIT with every 520 or 1040 ST purchased at Silica Shop. These offers will only be available for a limited period and commence on 11.8.89.

## POWER FOR BUSINESS

The list below shows some of the new business products which have been recently launched for the Atari ST range. It gives an indication of the ST's potential to business buyers looking to install a powerful, low-cost system.

**CP/M EMULATOR**  
**30Mbyte HARD DISK**  
**IBM COMPATIBILITY**  
**LOTUS 123 - CLONE**  
**MSBASIC II**  
**MSBASIC III**  
**MSBASIC IV**  
**MSBASIC V**  
**MSBASIC VI**  
**MSBASIC VII**  
**MSBASIC VIII**  
**MSBASIC IX**  
**MSBASIC X**  
**MSBASIC XI**  
**MSBASIC XII**  
**MSBASIC XIII**  
**MSBASIC XIV**  
**MSBASIC XV**  
**MSBASIC XVI**  
**MSBASIC XVII**  
**MSBASIC XVIII**  
**MSBASIC XIX**  
**MSBASIC XX**  
**MSBASIC XXI**  
**MSBASIC XXII**  
**MSBASIC XXIII**  
**MSBASIC XXIV**  
**MSBASIC XXV**  
**MSBASIC XXVI**  
**MSBASIC XXVII**  
**MSBASIC XXVIII**  
**MSBASIC XXIX**  
**MSBASIC XXX**

Any ST computer will provide its user with a very powerful asset, offering a vast range of applications, particularly in the business world. Many software companies have been keen to recognise it for its business potential, and have produced programs for the ST which harness this potential. In addition, there are several peripheral and hardware products becoming available to add to the ST's 'Power for Business'. Software now available includes dBase, a dBASE III clone as well as Hard Base, a dBASE II clone. In fact, First Software have now launched Ashton-Tate's original dBASE II program for the ST. In addition, CP Interconnect is a VT100 emulator which enables you to use any ST keyboard as a terminal connected to a mainframe or mini. Other programs include a powerful accounts package by Cashlink and a Lotus 1-2-3 clone called VFP Professional. Microsoft have announced that their powerful word processor Microsoft Word will soon be available for the ST. Many packages are available for very specific market applications including a powerful CAD (Computer Aided Design) program called Easy Draw from Muprah. In addition, there is an engineering tool called PCB Board Designer by Abacus Software which will enable the user to design printed circuit boards. For further details of how the ST can help in your business, return the coupon below. We will be pleased to send you our latest newsletter and price list.

## PRICE MATCH PROMISE

We hope you will find that the combination of our low prices, FREE delivery service, FREE Starter Kit and after sales support, will be enough to make you buy your Atari equipment from Silica Shop. If however, there is something you wish to purchase, and you find one of our competitors offering it at a lower price, please contact Owen Pearce (Office Manager), or one of the sales staff in our sales department. When you telephone us, please provide us with our competitors name, address and telephone number. Providing our competitor has the goods in stock, we promise to match his offer on the same product - same price or better, and still provide you with our normal free delivery. You will also be entitled to our full after sales service, including free newsletters and technical helpline support. We don't want you to go anywhere else for your Atari products. So shop at Silica, the UK's undisputed No.1 Atari specialist.

## FREE STARTER KIT WITH EVERY 520 & 1040 ST PURCHASED AT SILICA SHOP RETURN THE COUPON FOR DETAILS

SILICA SHOP LTD, 1-4 The Mews, Hatherly Road, Sidcup, Kent, DA14 4DX  
SEND FOR FREE ATARI ST LITERATURE

To: Silica Shop Ltd, Dept PCW0986, 1-4 The Mews, Hatherly Road, Sidcup, Kent DA14 4DX  
**PLEASE SEND ME FREE LITERATURE**  
ON THE NEW RANGE OF ATARI ST COMPUTERS

Mr/Ms/Mc: Initials: Surname:  
Address:

FREE POST A PACKING ON MAIL ORDERS  
+ FREE NEXT DAY DELIVERY  
+ INFORMATION MAILING SERVICE  
+ TECHNICAL SUPPORT TEAM  
+ HIGHLY COMPETITIVE PRICES  
+ AFTER SALES SUPPORT SERVICE  
+ REPAIR SERVICE ON ATARI PRODUCTS

SILICA SHOP LTD  
HOTLINE 01-319 9111

Do you already own a computer  
if so, which one do you own?  
Postcode:



## A chip off the old Music Box

Mark Jenkins looks at some new packages which utilise the improved sound chip of the Spectrum 128



**O**liver's *Music Box* (£9.99) and *Music Composer* (£11.99, available from December), marketed by the Wackily named Cosmic Pop, are intended to cope with music inputs and processing and have a few features which their creators claim are unique. For instance, both programs use conventional music staves but can cope with tied notes (notes joined together with a line which indicates that their values are to be added together) even if they cross bar lines.

Unfortunately the Spectrum 128 can't be connected to a printer while it's in 128K operating mode, and so there is no printing facility on the *Music Composer*. Otherwise the two packages are pretty similar.

*Music Composer* does allow you to use the Spectrum's noise generator which is not normally accessible from 128K Basic, and thus lets you create drum sounds as well as musical notes; the nature of the drum sound depends on the musical pitch and envelope you choose, and the tied notes are another effect inaccessible from 128K Basic.

The opening Menu features the following options:

- 1 Manuscript
- 2 Play Tune
- 3 Enter New Tune
- 4 Editor
- 5 Load From Tape
- 6 Save To Tape

and if you use option five to load the demo you'll come up with a rapid and lively gypsy dance played with two simple tones.

The Manuscript option gives three further options - 1) melody, 2) harmony and 3) bass. Each of these has a display of a seven-octave keyboard and a readout of the tempo at the top of the screen.

You can select any major or minor key to play back the music, although you won't be able to stop the music once you've started it playing (awkward if you just want to check a short section of your composition).

Enter New Tune (option three) lets you specify sharp or flat notes and lists the possible key signatures (some pretty complex ones are available). Then you can type in a time signature - 4/4, 12/8,

*"Music Composer allows you to use the Spectrum's noise generator, which is not normally accessible from 128K Basic, and thus lets you create drum sounds and musical notes."*

even 9/16 and more obscure timings are available.

The program helpfully points out that the spaces on the stave represent the notes FACE and the lines represent EGBDF (ACEG and GBDFA if you switch to the bass clef), and a selection of keys from the bottom of the Spectrum keyboard enter your notes. You can select a new note length, ties and so on at any point.

Once you've composed a line you can change its pitch in semitones (transposition) and set the tempo from 20-160 bpm plus a fine tune control.

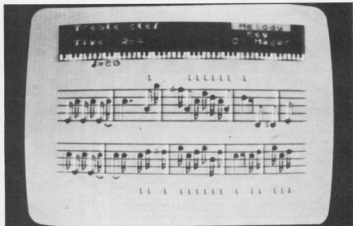
The Final Check option plays your tune before storing it away, and you can listen to bass, melody or harmony parts individually. The Special Effects accessed from the Edit Page are really envelope controls, allowing you to choose an envelope shape and speed with various repeated envelope options for mandolin-like effects.

The composer is pretty easy to use, although it is possible to crash this pre-production version with a simple *Nonsense in Basic* entry. Still, good value for money, a nice compromise between education and fun, and limited only by the fairly simple sounds accessible from the Spectrum's sound chip.

*Oliver's Music Box* is a simpler version of the same package but for a 48K machine. The difference is that it allows you to print out your music, entering notes from the keyboard in more or less the same way. Whether printing is of any interest to you depends on what applications you'll find for your music.

In the Final Check mode, *Music Box* fills up the empty staves a note at a time, which is a good way of spotting mistakes in your programming. 5600 note capacity and 15 demo tunes make this one pretty good value for money too.

Cosmic Pop can be contacted at PO Box 475, London E4 9UD.



# CLASSIFIED

Semi-display — £7 per single cc (+ VAT)  
Lineage — 30p per word (+ VAT)

CALL RODNEY WOODLEY on 01-437 4343 FOR SEMI/DISPLAY ADVERTISING

## SOFTWARE

# FRONT PAGE

FOR THE QL  
BY  
GAP SOFTWARE

DESK-TOP PUBLISHING  
FOR THE SINCLAIR QL

HERE IS A SUMMARY OF THE FACILITIES:

800x800 pixel drawing area  
Supports all QL text sizes.

Alternative font.  
Very simple text entry.  
User-defined graphics on 8x8 square.  
Freehand graphics.  
Cut and paste.  
Load and save full and part screens.  
Up to 88 lines and 133 columns.  
Load your own screens.  
Supports floppies, readisks, etc.

This advertisement  
was prepared with  
FRONT PAGE

FRONT PAGE  
...is supplied as  
two cartridges and  
a user manual. It  
is complete, ready  
to use. Now it is  
possible to try  
desktop publishing  
for yourself for  
only  
**£22-50!**

Yes, the QL can now do  
desktop publishing, and  
can do it economically!

FRONT PAGE allows you to  
do something USEFUL with  
your QL. Design your own  
work, produce your  
Company newsletter, make  
up leaflets quickly.

AND DO IT ECONOMICALLY!

FRONT PAGE is:  
FULLY MENU DRIVEN  
SELF-CONTAINED  
VERY EASY TO USE  
AND ECONOMIC

REMEMBER WHERE YOU READ  
IT FIRST-ON FRONT PAGE!

GAP SOFTWARE, 17 ST. JOHN'S TCE, LONDON, E7 8BX: 01-552-5452

P&P INCLUDED FOR UK AND EUROPE. ADD £1-00 FOR OUTSIDE EUROPE

### Get InFormed...

UNIQUE probability-theory-tested Pool Predictor for the Acorn Electron. 60%+ accuracy possible. £7.95 incl. P&P. Ideal for Fixed Odds fans. Cassette version only. Cheque/P.O. to: Allan Data, 1 Lorn Road, Dunbeg, Connel, Argyll PA37 1QG.

### Get FINDERFINDER!

FREE MEMBERSHIP!  
Here CBM 64, VIC20, Spectrum software. Top titles. Low prices. SAE for free information pack stating machine, Computers (PCW), PO Box 28, North P.D., Nottingham NG5 2EE.

### DIRECT FROM THE MANUFACTURER! AT SUPASMOOTH HEAVY DUTY POWER SUPPLIES

Commodore 64	
1st grade case	£24.95
Scoiled case	£19.95
Stem with	
on/off switch	£14.95
Electron with	
on/off switch	£14.95
Dragon	£16.95
All with 2-year guarantee	
FEAKSPT 48 QUEN STREET, BALDERTON, NEWARK, NOTTS NG24 3NS.	
Access/Visa orders or trade enquiries	
phone 0536 705520/58m-Spenn (83)	

AMSTRAD PCW 8512 never used. Bought in August. Everything included. £100. Tel: 01-993 1929. Also floppy disks.

COMMODORE 3040 dual disk drive, needs slight attention. Price £100. Wanted Spectrum RGB interface. Tel: Romford (0708) 46948.

### HOME ACCOUNTS

Put your house in order! Probably the best home use for your computer! Comprehensive coverage of bank, accounts, credit cards, HP, standing orders etc. Inbuilt accuracy check for all transactions. Cashflow projection. For all Amstrads, Commodores and Spectrums.

£9.95 or FREE trials from:

**DISCUS,**  
FREEPOST,  
ILFORD IG1 1BR  
Tel: 01-514 4141  
(24 hours 'live')

### Christmas Special Offer

*SPECTRUM 128+2 GIFTPACK	£145.00
*SPECTRUM 128+2	£135.00
*AMSTRAD PCW8256	£407.00
*AMSTRAD PCW8512	£510.00
*AMSTRAD PC8128 Colour	£385.00
*AMSTRAD PC8128 Green	£280.00
*AMSTRAD CP464 Colour	£280.00
**AMSTRAD DMP2000 (printer)	£144.00
**AMSTRAD FD1 (disc drive)	£140.00
**AMSTRAD FD-2 (disc drive for PCW)	£86.00
**AMSTRAD RS232 interface (for PCW8256)	£134.00
**AMSTRAD MP-2 Modulator (464, 664, 8512)	£58.00
**3 FLOPPY DISCS box of 10!	£23.00
**3 FLOPPY DISCS box of 10!	£36.00

ALL AMSTRAD HARDWARE & SOFTWARE AVAILABLE.  
ALL PRICES INCLUDE VAT. MAIL ORDER CUSTOMERS PLEASE ADD £5.00. \*\*£2.00 for P&P.

### NEWCROWN COMPUTERS LTD

98-100 HIGHTOWN ROAD,  
LUTON, BEDS LU2 0DQ (U.K.)

TEL: 0582 455684



AMSTRAD tape/disc transfer from £1 per program. Send S.A.E. to R.M. Productions, 40 The Brow, Brecks, Rotherham, S. Yorks S65 3HP.  
ZEUS 3X system with 3 VDUs, printer and tape streamer, offers invited. Tel: 0432 286653.

400/800  
LOOK  
XL/XE  
ATARI OWNERS  
BT

Are you having difficulty finding suitable software of any kind, look no further. We have available for both home and office use the largest selection of 400, 800, XL and XE software. Hardware and software available at discount prices and special offers regularly being offered. If you would like the former information please send a large A4 SAE to:  
DISCOWARE, 155/156  
B&H Wharfedale, Barns, Leicestershire  
Loughborough LE11 1SD  
Tel: 0506 471014

### Atari 400/600/XL/XE Essential Utilities for Tape and Disk Owners!

**Transdisk Version 3.0**  
The most powerful tape to disk system the Atari now made even better. Transfers commercial, machine code, "boot" cassette games or any other software to disk. Single, multi-stage and now even non-standard format tapes present no problem to Transdisk. Plus, even the convenience of loading and running your newly transferred software from an automatic menu. No other tape to disk utility for the Atari is as powerful, or successful as this! £19.95 inc. Easy pays for itself! Supplied on disk with instructions.

**CopyGen Version 1.3**  
Duplicate single, multi-stage even non-standard format, "boot" tapes or other cassette software and gives you the option to save your backed-up tapes at faster speeds. The back-up will then load faster than the original! £9.95 inc. Supplied on tape with instructions. Send an SAE or phone for more details. Make Cheque or P.O. payable to DisCom and send your order to:  
DisCom, 170 Broadview Common Boulevard, Milton Keynes, BUCKS MK13 8BG.  
Tel: (0908) 663708.



# Oberon International OMNI-READER™ £39.99

Including VAT, Postage and packing

The Omni-Reader is a new and easier alternative to typing in data. By using advanced character recognition techniques the Omni-Reader can read printed text and send it to the computer as though the information was coming from a modem.

The vast majority of office correspondence can be read by the Omni-Reader which supports the four major typesets used. These are Courier 10, Courier 12, Letter Gothic and Prestige Elite. To enter a page of text you place it under the special Omni-Reader ruler and read the text with an electronic eye. A small computer within the Omni-Reader then translates those images into standard ASCII text.

Any computer with a standard RS232 port can make use of the Oberon Omni-reader, all you need is some communications software and the cable for your computer.

Cables available for BBC Microcomputers, Sinclair Spectrum 128 and Spectrum +2 with machine specific instructions. Only £11.75

Cable and simple terminal software available for Atari ST. Only £19.95

Standard RS232 cable for IBM, Apricot and Amstrad only £14.95



To: Omni-Reader Sales, Metroheath Ltd, 287-289 Whitechapel Rd, London E1.

Please send me... Omni-Reader(s) at £39.99 each

..... IBM/Apricot cables at £14.95 each

..... Atari ST cables and software at £19.99 each

..... BBC Cables at £11.75 each

..... Spectrum 128/Spectrum +2 cables at £11.75 each

Name .....

Address .....

Make Cheques and postal orders to Metroheath Ltd,  
Please allow 28 days for delivery.

## VDU OPERATORS DO IT WITH A

**Thingi**  
computer copy holder

BUSINESS



IDEA OF THE YEAR

OUTRIGHT WINNER

ADVERTISE YOUR  
BUSINESS HERE

Makes an Ideal Christmas Gift -  
Everybody needs a Thingi!  
☐ Unique Velcro Fastening



The Thingi creates working space out of "thin air".  
☐ Left hand or right hand versions.  
☐ What colour clip do you want?  
☐ The affordable copy holder that suits your needs.

Don't struggle any longer -  
GRAB YOUR THINGI NOW!!

Your nearest Stockist is:  
OVERSEAS LTD.  
Contact George Sanders  
The Computer Store  
Barnes, Middlesex TW8 9LH  
Tel: 081 847 980  
Fax: 081 847 980  
Mail Box 12, MK60-9090

R.P.P.  
£6.99  
incl. S.T.  
and P.T.

ANOTHER GREAT BRITISH PRODUCT EXPORTED WORLDWIDE • TRADE ENQUIRIES WELCOME

## AB COMPUTERS & ELECTRONICS

### SPECIAL CHRISTMAS OFFER

5% additional discount on anything for anyone who sends in this advert with an order

★ ATTENTION ALL COMMODORE USERS: SPECIAL PROMOTIONAL PRICES FOR THE AMIGA

★ Amiga System 1 only..... £975

★ Amiga System 2 only..... £1175

★ On site maintenance: 1st year parts/labour; FOC with every Amiga

Offer lasts until end of November 1986

★ COMMODORE C128, C128D, 64C, Commodore 64C + mouse + cassette unit + graphics software + 5 games; monitors and printers; disk drives; books, accessories and full range of software available.

★ ATARI 1040STF + mono monitor, £799, 1040STF + col. monitor, £999, 520STX, £299, 130XE 128K, £113, SM125 mono monitor, SC1224 col. monitor; 1029, 1027, 1020, SMM804 printers, SF314, SF354 floppy disk drives, SH204 20M bytes Winchester drive; accessories, books and full range of software available.

★ AMSTRAD CPC464, 8512, 8256, 1512, £155.65

★ BBC Master 128 £433.91, Compact mono system £467.69,

Compact col. system £597.69, Compact TV system £397.69,

Compact entry system £383.69; Dual disk drive £303.48, Single disk drive £155.65

★ IBM/COMPATIBLES NEC, Olivetti.

★ PRINTERS. Laser Special QMS k8 £1985, MP201 (P) dot matrix £389, 4MP200 (P) dot matrix £328, MP165 dot matrix £228, Canon P.J. 1080A colour only £260.83, Citizen 1200 only £138.26, Panasonic KX-P1080 only £138.26, Juki 55k only £229, Commodore MPS1000, MPS803 and other dot matrix and Daisy Wheel printers available

★ SATELLITE TV SYSTEM. SX1600 Receiver + Northsat dish + Polarator & LNB only £694.78.

★ SOFTWARE SAGE Dealer, CAD/CAM, word processors, spreadsheets, languages, education, entertainment.

★ 3 1/2 & 5 1/4 inch Winchester; up-grade cards; 2nd processors; modems; electronic mail box; telex; 3 1/2 & 5 1/4 floppy disks; ribbons, cables, continuous paper; graph paper for the P.J. 1080A printer.

★ SPECIAL PROMOTIONAL OFFER

★ Up to £100 of free software for every purchase of Atari 1040STF.

★ 15% off all additional software purchased in the 1st year.

★ Fast, reliable low cost repair service for all computers.

★ Mail orders welcome - Access/American Express.

★ Export enquiries welcome.

★ All prices exclude V.A.T.

★ Call us on 011 568 7149.

Great West Road, 173 Thornbury Road, Osterley,  
Isleworth, Middlesex TW7 4QG.  
Telex: 946240 CWEASY G Ref: 1900 8215

# EXPRESS SPECTRUM, BBC and COMMODORE REPAIRS!

SOFTWARE  
RRP £39.00 FREE WITH  
EVERY REPAIR

WHY PAY HIGH  
'FIXED'  
PRICES

Spectrum  
repairs between  
£8 and £20

BBC repairs  
between  
£14 and £40

Commodore  
repairs between  
£14 and £25

## \*Spectrums only

(We do not charge you for our  
fancy presentation by charging  
high 'fixed' prices!)

Reputations take time to build,  
we have been repairing ZX81's,  
Spectrum, QL's, Apples and  
BBC's professionally for 2 1/2  
years - who is coming second?

In all U.K. with White-u-Wat repair  
with INTERNATIONAL repair service

to charge LOW PRICES for the smaller  
repairs! (e.g. £8 for keyboard faults)

FOR LOW PRICES - "My computer  
broke recently, I took it to MANCOMP  
who fixed it in 15 minutes and for less  
than £10. They are fast, skilled and  
sincerely efficient!" A HEATHS  
DISCUST

FOR PROFESSIONISM - "Of all the  
repair companies 'Service User' spoke  
to, MANCOMP seemed the best!"  
PROFESSIONAL when it came to advice  
and a helpful attitude! AUG 85.

FOR HONESTY - "We let you watch  
your computer being repaired and if  
there is nothing wrong with it, we will  
tell you!"

FOR REPUTATION & HELPFULNESS -  
"I have come across a firm that will be  
more than willing to advise you as to  
how to remedy your problem. They are  
called MANCOMP and as well as  
repairing faulty computers, are also  
quite willing to discuss your problem  
with you and offer reasonably cheap  
and more importantly CORRECT  
CURES!" THE MAGNETIC JOURNAL  
COMPUTING WEEKLY JAN 85.

FOR SPEED - "One firm at least can  
effect any necessary repairs over the  
counter in 15-45 minutes. Based in  
Manchester, MANCOMP can offer  
what is arguably the FASTEST  
turnaround in the business to personal  
customers!" CRASH MAGAZINE JUNE 1985

THIS IS WHY Spectrum users from  
London, Cornwall, Scotland,  
Birmingham, Liverpool, Coventry,  
Leicester, Glasgow, L.O.M. etc.  
AUSTRALIA, ALGERIA, BELGIUM,  
EGYPT, GERMANY, HOLLAND,  
KANSAS, NORMAN, INDIAN, PANAMA

NEW GUINEA, SAUDI ARABIA,  
SWEDEN, SWITZERLAND and  
ZIMBABWE - send their Spectrums to  
MANCOMP for repair!

24 HR. TURNAROUND - NO-QUISBLE  
GUARANTEE. NO HIDDEN COSTS.

Because we repair hundreds of  
computers every week, we are  
able to pass on our 'component-  
buying discount' to YOU in  
lower prices!... Z80A CPU  
£1.50, 4116 S00, Upgrade  
£16.95

~ we bring down the prices for  
repairs and components!  
(We may refuse to rewire  
computers suffering from  
attempted D.I.Y. repairs!)

Every parcel sent by  
Royal Mail Registered Post and insured  
for return journey!  
For next day delivery call £1.50  
extra! (Service by prior arrangement).  
On-site maintenance for Apples,  
IBM's and most makes of printers  
also available.  
Guaranteed 48hr response!  
VERY DELAY - OUR ESTIMATES ARE  
FREE AND WITHOUT OBLIGATION. IF

YOU DO NOT LIKE OUR ESTIMATE  
WE WILL RETURN THE COMPUTER  
AND REFUND THE POSTAGE INCURRED

MANCOMP LTD  
(Dept PCW20)

Proctor's Lane, Levenshulme,  
Manchester M19 3JP  
Phone 061-224 9888  
OR 061-224 9888

OPEN MON - SAT 9am to 7pm



What we do today...  
others do tomorrow!

## FAST COMPUTER REPAIR

CENTRE - IN LONDON

\*BBC Micro, Commodore, Spectrum

\*Amstrad, Others

\*We sell spare parts

\*Epson Micros bought and sold

\*Epson Programming Service

Phone: 01-863 7166

PROMPT ELECTRONICS

Unit 4, 15 Springfield Road,

Harrow, Middx HA1 10F

(entrance in Amersham Road) (70)

## AB COMPUTERS & ELECTRONICS

\* Low Cost Repairs

\* COMPUTERS: Atari, Commodore,

Amstrad, BBC, QL, Spectrum, IBM &

IBM compatibles.

\* PRINTERS: Epi, Epson, Canon, Citizen.

\* Call Us On 01-568 7149

173 Thornbury Road, Cleeve,

Isleworth, Middlesex TW7 4GG

Telex: 946240 CWEASY G

Ref: 180082 15 (81)

## SOME FABRIC RIBBON RE-INKING PRICES

Printer	Price	Printer	Price
Amstrad DM15 & 2000	2.00	Amstrad POW556	1.00
Breton M1000	1.25	Canon 1000	1.00
Cometrol 4023	1.75	Epson 7300	2.00
Epson 1300	1.30	Epson Team 1000	1.00
Sanyo SP100	2.00	Shimadzu 4023	1.15
Silver Reed 1044	1.95	Smith Corona 2300	2.15

If you need fabric ribbon to use on this list, send it with £2.50 and we'll re-ink it at spot rates prices.

ALADDIN, (Dept PC), 4 Markar Crescent,  
Eynsham, Berks HP28 5AP (282)

## LOW PRICES-HIGH QUALITY

### 5.25" BRITISH MADE FLOPPY DISKS

Quantity Ordered (price per disk)

	Track	10-99	100-249	250+
SS/SD	40	£0.59	£0.54	£0.50
SS/DD	80	£0.69	£0.60	£0.55
DS/DD	40	£0.82	£0.73	£0.69
DS/DD	80	£0.88	£0.82	£0.75

### INTRODUCTORY OFFER

For every ten ordered, we will send you twelve!

These prices include hub rings, envelopes, labels  
and write protect notch tabs.

To ensure the high quality of these disks, every track and  
sector has been tested and is certified equal to, or in  
excess of every Disk Standard.

### 3.5" DISKS-packed in tens with

#### FREE Plastic Library Case.

SS	135 tpl	£9.50	£18.00	£16.00
DS	135 tpl	£25.00	£23.00	£21.00

Free delivery - All orders despatched within 24 hrs  
Add VAT at 15%

### Our Quality Guarantee:

Lifetime Warranty - two for one or money  
back if not satisfied

How to order: Cheque/Postal Order with order to:

## Longworth Ltd

31 Bridge Street, Newport, Gwent NP9 4BH.  
Tel: (0633) 52538 24 hour answering service

## SINCLAIR COMPUTER REPAIRS

### \* SPECTRUM/PLUS COMPUTER

REPAIRS.....£12.00  
(Special Offer)

### \* SPECTRUM (RUBBER

KEYBOARD) REPAIR.....£8.50  
(Special Offer)

### \* SPECTRUM PLUS KEYBOARD

REPAIR.....£12.00  
(Special Offer)

### SPECTRUM 16K/48K AND

KEYBOARD REPAIR.....£20.00

### SPECTRUM PLUS AND

KEYBOARD REPAIR.....£23.00

INTERFACE ONE REPAIR.....£17.00

INTERFACE TWO REPAIR.....£17.00

MICRODRIVE REPAIR.....£17.00

SPECTRUM/PLUS POWER PACK.....£11.75

(with new replacement)

### COMMODORE C64, C16/PLUS 4

VIC 20.....Price on application

All prices are fully inclusive of labour, parts, postage and packing,  
and VAT. Send cheques or postal orders with computer only, unless  
power pack suspected.

CALLERS MOST WELCOME. OPEN 9.00 AM-6.00 PM  
MONDAY-FRIDAY (87)

## I. T. WESTERN ELECTRONICS

UNIT F2A & F3, AVONSIDE ENTERPRISE PARK,  
NEWBROUGHTON ROAD, MELKSHAM, WILTS. TEL: (0225) 705017

## COMMODORE REPAIRS

by Commodore Approved Engineers

- ★ CBM Power Supplies C16/C64/Plus 4..... £15.00
- ★ VIC 20 Modulators..... £8.05
- ★ VIC 20..... From £14.05
- ★ CBM 64..... From £20.00
- ★ CBM PLUS 4..... From £20.00
- ★ CBM 16..... From £18.00
- ★ DISK DRIVES..... From £20.00

For more details write with S.A.E. or Telephone.

### G. C. BUNCE & SONS,

36 Burlington Road, Burnham, Bucks SL1 7BQ (86)  
Tel: 06286 61696 Mon. to Fri. 9.00-6.00



**spectrum**  
GROUP MEMBER  
OPEN 6 DAYS  
LATE NIGHTS THURS, FRI

All titles of Software stocked for QL & Spectrum

Spectrum Plus	£69.95	Sinclair ZX thermal paper	£12.95
New Commodore 64C pack	£239.00	(inc. postage)	
Spectrum 128 inc 2 games	£39.95	Timex 2040/Alphacom 32	£9.95
Spectrum 128 + 2 pack	£159.00	5 pack (inc. postage)	
Commodore 128D	£499.00	11" x 9" tractor feed	£9.95
Spectrum 2 pack 2 pack		Brother M1009 ribbons	£3.99
recorder lead	£1.95	DMP 2000 ribbon	£9.95
Rollcam head alignment tape	£4.95	Carroll microdot	£9.95
Microdrive expansion cable	£6.95	Vulcan gunshot 1	£6.99
Rotronics waferdrive	£59.95	Konix speaking	£10.99
Beta disk interface	£59.95	The Stock Mercury III	£12.99
Discovery 1/128 disc drive	£99.95	Chester Mach 1	£14.95
Kempston new disc interface	£7.99	DK Tronics dual port	£12.00
(inc built in reset switch)		DK Tronics programmable I/F	£22.95
Microdrive cartridges 4 pack	£7.99	Kempston I/F	£6.95
128K Wafer for Rotronics	£3.99	Games player with slot	£12.95
Microdrive storage box	£4.99	DK Tronics single port	£9.95
Disk notcher	£4.99	RAM Turbo dual port inc ROM	£18.50
Ascom 5 1/2" DSDO for 10	£4.99	port & reset	
Spectrum to monitor interface	£44.95	Kempston pro joystick interface	£16.95
Commodore 128 mouse keyboard	£9.50	QL joystick interface	£12.95
(11 ports)		The state joystick interface	£9.95
Computer to T.V.	£1.50	DK Tronics keyboard	£29.95
Commodore C2N detector	£39.95	Saga	£37.50
5x3 1/2" SS DD Ascom discs	£9.95	Lo-Profil	£38.00
Timex 2040 printer only	£24.50	Saga Elite	£64.50
(inc plug)		AMX/ or Kempston Mouse (inc	
Kempston centronics E'		free art pack)	£69.95
Interface	£39.95	Spectrum light pen	£19.95
D. C. Tronics S&W lead	£9.50	Spectrum	£29.95
QL to Epson (serial)	£9.50	OS4 Final Camcorder	£37.50
Spectrum to Epson (INT-1		Carroll speech	£19.95
serial)	£9.95	3 channel sound	£29.95
Spectrum to Brocade	£14.95	Priam VTX 5000 modem	£44.95
Rotronics RS232C serial or centronics		(inc post)	£10.50
cable for wafer drive	£12.95	Spectrum reset switch	£4.99
Brother Hi8 thermal paper	£9.95	Spectrum plus reset	£4.99
Brother Hi8 paper	£9.95	Romantic robot "multiface" 1	£39.95

PLEASE QUOTE (P/CW)

\* SEND STAMPED—S&E FOR FULL PRICE LIST \*



MAIL ORDER Cheques/P.O. payable to: MICROSNIPS  
and Sg in postage (24 hour Anaphone)

## FAULTY SPECTRUM?

As you are probably aware from press reports Sinclair Computers no longer have a repair department.

Our computer repair workshop has been an OFFICIAL Sinclair Repair Depot for the past six years and we are pleased to announce that we will continue to do your out of guarantee repairs as in the past.

Send your faulty computer DIRECT

SPECTRUM	£18.75 inc parts
ZX81	£11.50 inc parts
16K RAM	£9.95 inc parts
MICRODRIVE	£15.95 inc parts
INTERFACE 1-11	£18.75 inc parts

CALL OR SEND WITH CHEQUE OR P.O.

T.V. SERVICES OF CAMBRIDGE LTD  
FRENCH'S ROAD, CAMBRIDGE CB4 3NP  
Tel: 0223 313371

2874

FOR SALE

## DISCS

AMSTRAD/PANASCAN C2	£33.0
3 1/2" per 10 inc. tape and labels	
MAXELL	£22.43
MAXELL	£22.43
VERBATIM	£19.50
SONY	£19.50

5 1/4" per 10 inc. tape and labels	
ATHENA	£18.95
MAXELL	£18.95
MAXELL	£18.95
MAXELL	£18.95
VERBATIM	£18.95
VERBATIM	£18.95
VERBATIM	£18.95
UNBRANDED	£8.99

**RUGBY MICRO SPARES**  
30 OXFORD ST, RUGBY  
CV21 3NF (0788) 71643  
Callers welcome by App.

## COMPUTER HIRE

TO HIRE A COMPUTER AND/OR PERIPHERALS BY THE WEEK OR MONTH  
(RINT 01 607 0187 or 01 987 0457)  
WE SPECIALISE IN BBC AND ALSO HAVE A RANGE OF AMSTRAD COMPUTERS FOR HIRE

**COMPUTER SERVICES**  
294 CALEDONIAN ROAD  
LONDON N1 1BA (8)

## YOUR PERSONAL CENTRONICS PRINTER

**UNBEATABLE**  
FROM **£94** OPTIONAL TRACTOR  
plus vat and £8 p.p.  
  
ORDER NOW

- FAST 50/100cps FAST
  - DRAFT MATRIX PRINT
  - NEAR LETTER QUALITY
  - SUBSCRIPT SUPERSCRIPT
  - CONDENSE EMPHASIS
  - 96 CHAR+48 EURO+16 MATHS
  - EPSON/IBM CPC GRAPHICS
- ROCK HALL**  
TEL (0533) 313531

**EINSTEIN** + colour monitor, £350 of software, speech synthesizer, Spectrum emulator, £375. Also QL ("JS"), 8056 printer, (all new) + paper, software: business, "graphol", flight simulator + games, joystick, £120. Tel: Pete (0952) 582275.  
QL with twin 3 1/2" inc. discs, drives, extra 256K ram colour monitor, Sinclair printer, lots software incl. supercharge, ice, q. spell, £550 o.n.o. Will sell. Tel: 0244 543209.

**AMSTRAD CPC** owners, Colloquy, German (supplements) artificial German courses, Cassette £2.50. Disk £6.90. Other versions if demand exists. CPC esperanto song. Paul Brown, 19 Wren Road, Sidcup, Kent DA14 4LY.

**COMPUTER** monitor, 12" green screen computer monitor. Composite video input. 12MHz bandwidth £50. ZX81 in need of attention plus books and software. Any offers? Tel: 021-426 1969.

**ELECTION** with plus 1 and twin joystick, cassette player. Boxed as new with 5 games. Tel: Workshop 483547 £80 o.n.o.

**AMSTRAD** 6128 colour computer with colour monitor. As new. £300 no offers. Tel: 0682 881913 (Luton, Beds.)

**QL WITH T.V.** £80. PCML disk interface + 256K RAM + toolkit £130. Dual 3.5" 1.5Mbytes diskdrive £150. QL centronics printer interface £10. Others. Details: Buckley (0244) 547323.

## BLANK CASSETTES

WITH LIBRARY CASES			
	C10	C15	C20
20	7.50	7.70	7.90
50	16.00	16.20	16.50
100	29.00	30.00	31.00

Fully inclusive (COD 85p extra)  
Superior Tapes. Don't Settle for Less!

**DISKS**  
10 5 1/4" DS/DD £8 inc plastic case  
10 3 1/2" SS/DD £17  
MEMOTECH COMPUTERS AND ACCESSORIES

MTX 512 COMPUTER	£75.00
DMX 96 PRINTER	£150.00
RS232	£35.00
PASCAL ROM	£35.00
SPECULATOR ROM	£35.00
1 mb. DISK DRIVE & INTERFACE	£110.00
1 mb. DISK DRIVE & INTERFACE	£210.00

All the above prices are fully inclusive. We stock the most comprehensive range of software.

**UK HOME COMPUTERS**  
100 DEPENDANCE WAY DEBENHAM  
SUFFOLK IP20 9JH  
24hr Phone Service 0750 880000 30p/24

**BBC B** dual disc, colour monitor, 50 discs including games and utilities, manuals, advanced user guide + other books + Acorn user and micro user magazines £450 or will sell. Tel: 01-540 5614 evenings.

**ATARI** SI drive "SF354", boxed as new. Purchased 7/8/86 still nine months guarantee left. Tel: 0702 343591. "Southend". £100 o.n.o. Will post if necessary.

**ADVENTURE PROBE** is a magazine for adventurers. Adventure contact is a magazine for adventure writers. Sample copies £1 each from Adventure Probe, 78 Merton Road, Wigan WN3 6AT.

**AMSTRAD** software for sale, all originals with instructions. Hisoft Devnet disc £12. Word perfect disc £12. Scrabble £4. Sold a million £4. Impossible mission £4. Tel: John on 0229 38737.

**ADVENTURE PROBE** is a magazine for players. Adventure Contact, newsletter for writers. Sample copies £1 each from Adventure Probe, 78 Merton Road, Highfield, Wigan, Lancs WN3 6AT.

**ATARI 1050** plus Happy Enhancement disk drive £210 o.n.o. Also Atari ST354 disk drive £115 o.n.o. Both excellent condition. Tel: Freelead (0993) 882180 evenings only.

**ATARI 1040**. One month old, plus Atari colour monitor, soft. ware. £995 save £150 plus £200 worth of s/w. Guaranteed for 12 months. MSX s/w. also. Tel: Adrian 0474 60495.

# There's a Dealer near you . . .

## ESSEX

### ESTUARY PERSONAL COMPUTERS

318 CHARTWELL NORTH  
VICTORIA CIRCUS SHOPPING CENTRE  
SOUTHEAST ON SEA  
Tel: (0702) 614131

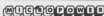
PL104

## SCOTLAND

**FOR BARGAIN DISCS**  
CALL  
**GRABACON**  
9 LOW ROAD,  
CASTLEHEAD,  
PAISLEY,  
SCOTLAND  
PA2 6AQ  
Tel: 041-889 0885

(94)

## LEEDS



**NORTHWOOD HOUSE**  
NORTH STREET  
LEEDS LS7 2AA  
Tel: (0532) 458800

PL103

## LONDON

**GALLERY SOFTWARE**  
1st FLOOR  
THE ARNDALE CENT,  
WANDSWORTH,  
LONDON SW18  
Tel: 01-870 4941

277/29

## GLASGOW

THE COMPUTER DEPOT  
205 BUCHANAN STREET  
GLASGOW G1 2JZ  
Tel: (041) 332 3944

PL105

## LIVERPOOL

**NABITCH**  
COMPUTERS  
SPECIALISTS IN AMSTRAD  
PCW8256 - PCW8512  
SOFTWARE & HARDWARE

MERSEYSIDE INNOVATION CENTRE  
131 MOUNT PLEASANT  
LIVERPOOL L3 5TF  
051-709 0123/708 8775

Software Design Service Available

289/1

## MEGABYTE

12 ETRICK SQUARE  
CUMBERNAULD  
G7 1ND  
0236 738398

(93)

## Microbyte

We talk business, not bits & bytes  
NO. 1 ON MERSEYSIDE FOR  
ATARI AND AMSTRAD  
71 SEAVIEW ROAD, WALLASEY,  
MERSEYSIDE L45 40W  
(051) 630 6933/638 1420  
10 am - 6 pm  
MAIL ORDER  
SERVICE AVAILABLE

(310)



## YORKSHIRE

**YORK COMPUTER CENTRE**  
7 STONEGATE ARCADE  
YORK  
Tel: (0904) 641862

PL106

## SURREY

**ULTIMA**  
UNIT 28  
WHITE LION WALK  
GUILDFORD  
(0483) 506939

289/1024

## COMPSWAP

**AMSTRAD** 6128 (green) plus Tasword w/processor, masterfile database, mastercalc spreadsheet, many utilities and games, joystick etc: £300 o.n.o. Nightingale modem plus commstar rom: £120 o.n.o. Buyer collects. Tony. 01-961 5886

**AMSTRAD** CPC second drive £70. DK 6128 Silicon disc £70. Pasion organiser II plus RS232 link, format, mains unit, finance pack and 4 data-packs £250. Buyer collects. Tony. 01-961 5886

**AMSTRAD** 6128 discs: new word £45, protect + prospell £40, masterfile III £30, Mastercalc 6128 £20, Mini office-II £12. Games £9 each: Winter Games, Speech, Chess, Monopoly, Rocky Horror. Tony. 01-961 5886

**ORIC ATROS** plus books, tapes and programs from mags £70 o.n.o. Atari VCs plus 20 cartridges £40 o.n.o. C64 software for sale all original 50p to £4. Ring for details ask for Andy 0689 73663.

QL owner interested in programming and adventure games, seeks pen-friends in Britain or overseas. Write in English or German. Richard, 79 Mayor's Road, Altrincham WA15 9RW.

**AMIGA SOFTWARE** for sale. Deluxe Paint, £55. Arctic Fox, £15. Both for £60. Call Jason on 0526 53329.

**COMMODORE** MPS-801 printer, unused, inc. ribbon and paper, £85 o.n.o. Commodore 1570 disc drive, 2 months old, £135 inc. Datapack carrying. Frewie Frame II cartridge, £15. Call Jason on 0526 53329.

**SINCLAIR QL**, 6 months old. Good condition, £70. Expendam 512, £90. Original games: Karate, The King, Scramble, Artice, Choice, Cuthbert in Space and more. Sale for £5-8. Tel: 0742 731688.

**ATARI 130XE** + printer + disc + books + software, perfect condition, boxed. Tel: Maidstone (0622) 46099 evenings.

**CBM 128**, 1570 disc drive, MPS-803 printer, monitor, C2N cassette, joystick, integrated wordprocessor and database, spreadsheet, utilities and games. Ideal for home and business, £495 o.n.o. Call Tony evenings 01-701 1692.

**CPC 6128** colour/mono monitors, second drive, AMX Mouse, Utopia Rom, joystick, MP2, £600; with mainly free software and books, £650. Full list available. Tel: David on 0482 898005 evenings.

**ATARI 800XL**, brand new, unused + plastic protective cover + 1010 recorder + Proline joystick + 14 commercial titles and other tapes only £130 o.n.o. Call Daniel on 0293 782190.

**BBC B** tape, disc drive, software, lightpen, joystick, £425 o.n.o. As new, only 12 months old. Tel: Cradley Heath 634576.

**FOR SALE**. Mirage Imager for the Amstrad. Copies all software to disc. Brand new, £40. Tel: Dave on 01-203 0329 after 6pm.

**ATARI 800XL**, 1050, 1010, CGP40 (plotter - duff), books, magazines, software, £150. Microbox II: part built, £100. Tel: Vince at Bordon 3323 daytime or Aldershot 623046 evenings. Delivery considered.

**64K ATARI 800XL**, plus 1050 disc drive plus software on tape. disc and Rom, only £150. Tel: Wigan (0942) 864991.

**GRAPAD 2** plus disc, software, £49.50; Dart lightpen plus software (Pixel accurate), £19.50. Both for Amstrad 6128. Tel: 0747 840715.

**WITNEY**  
**COMPUTER CENTRE**  
105 HIGH STREET,  
WITNEY,  
OXFORDSHIRE  
Tel: 0993 78294

(77)

## DUPLICATION

**SIMON STABLE PROMOTIONS**  
CASSETTE DUPLICATION  
Competitively priced service of DATA-DUPLICATION. Comprehensive facilities includes blank or printed cassettes, discs, labels, relays, also bar-code printing. PRICE LIST FROM:  
The Knightbridge Stables  
20 West End, Launceston, Devon EX4 0DP.  
Tel: 0869 25 2831

(73)

See records  
**COMPUTER PROGRAMS**  
REAL-TIME or HIGH-LEVEL professional Cassette Duplication and Storage 1 to 1,000+. Computer printed cassette labels. IBM & PC disk copying 1 to 500+. Fast Security Delivery Service.  
FILTERBOND LTD. - J&B RECORDS DIV.  
FREEPOST, 19 Balfour Way, Harlow SS16 2B8.  
0282 981188

(7)

## CASSETTE COPIES

50 C10's FOR ONLY £40 INC. P + P  
FROM YOUR CASSETTE MASTER  
IN REAL TIME. PLEASE PACK  
IN FOIL AND SEND CHEQUE TO—  
SOUNDS GOOD  
CLEAR ROCK, BOTTOM LAKE,  
SEER GREEN, BUCKS HP9 2UH.  
TEL: (04946) 5900

289/103

## INTERCHIP

3 MILLER STREET  
GLASGOW  
Tel: 041-248 6667  
Dealers for Amstrad/Atari  
and PC clones

(290)

John Cook looks through this week's new arrivals

## Amstrad CPC

**Program Pipeline II Type** Arcade **Micro** Amstrad CPC **Price** £1.99 **Supplier** Mastertronic, 8-10 Paul St, London EC2



**O**r *Super Pipeline II* as it says on the loading screen. A Taskset oldie circa 1985 – but none the worse for that. A combination of arcade and strategy as you keep the pipeline open vs animated tools (no jokes, please).

**Program Amsocket Type** Arcade **Micro** Amstrad CPC **Price** £1.99 **Supplier** IJK Software, Unit 3c, Moorfields, Moor Park Avenue, Bisham, Blackpool, Lancs FY2 0JY.

**Program Timetrax Type** Arcade Adventure **Micro** Amstrad CPC **Price** £9.95 **Supplier** Mind Games, Argus Press Software, Victory House, Leicester Place, London WC2.

**Program Rocketball Type** Arcade **Micro** Amstrad CPC **Price** £6.90 **Supplier** IJK Software, Unit 3c, Moorfields, Moor Park Avenue, Bisham, Blackpool, Lancs FY2 0JY.

**Program Hi-Soft Forth Type** Utility **Micro** Amstrad CPC 6128 (disc only) **Price** £19.95 **Supplier** Hi-Soft, The Old School, Greenfield, Bedford MK45 5DE.

**Program Hi-Soft SeaChest Type Chess Micro** Amstrad CPC 6128 **Price** £19.95 (disc only) **Supplier** Hi-Soft, The Old School, Greenfield, Bedford MK45 5DE.

## Amstrad PC 1512

**Program Knife-86 Type** Utility **Micro** Amstrad PC 1512 or any IBM PC compatible **Price** £29.95 **Supplier** Hi-Soft, The Old School, Greenfield, Bedford MK45 5DE.

**W**hen you change from a tape-based system to disc based, you go around for days with the widest of smiles. Until you get a disc error.

I'm not saying that discs are unreliable – far from it – but that medium does seem to be a little more fragile than the bog standard tape. All the more important you have a decent disc editor then – like *Knife-86*.

Disc editors can do all sorts of useful things that you can't do direct from the operating system. Like recovering a deleted file, searching for a specific item of data and looking



at the hidden details of the directory. Sneaky, huh? Besides all these features, the program allows you to mess around with CP/M format discs and has a whole load of other short utility programs that might come in useful.

The documentation is excellent – and although you'd find it hard going if you had no prior disc experience before, some effort is made to explain the fundamentals.

For the price (and this is almost budget by PC standards) you're unlikely to do better.

## Amstrad PCW

**Program Write-Hand Man Type** Utility **Micro** Amstrad PCW 8256/8512 **Price** £24.95 **Supplier** Hi-Soft, The Old School, Greenfield, Bedford MK45 5DE.

**T**his is one of those desk-top applications that you boot up at the start of the session and run alongside your word processor, *Space Invaders* or whatever.



At a key-stroke, the other program freezes and a menu comes up on the top left of the screen, offering all sorts of executive goodies such as a Notepad, Calendar, Calculator and Key Editor.

All this is well and good and I suspect it's been done as well as it can be on the machine, but such is the end result, unless you're a really PCW loony, you're not going to be much interested in this.

**Program Hi-Soft Forth Type** Utility **Micro** PCW 8256/8512 **Price** £19.95 **Supplier** Hi-Soft, The Old School, Greenfield, Bedford MK45 5DE.

**Program Hi-Soft SeaChest Type Chess Micro** PCW 8256/8512 **Price** £19.95

**Supplier** Hi-Soft, The Old School, Greenfield, Bedford MK45 5DE.

**E**ver wondered what went on inside your chess program? Maybe you thought you could tweak with it to make it just that little bit better?

Well, if that's the case, and you're a real Hi-Soft head-banger – this is the purchase of the year.

It's a Chess program – not bad, too, by all accounts, except that it's written in C and Hi-Soft give you the source code, as well as the compiled code. So if you have Hi-Soft's compiler, you can get right in there and make those major changes. How about putting in an offbeat Sicilian Defence? Or something mundane like redefining the characters (I've always secretly craved a chess set depicting *Spitting Image* style members of the Cabinet).

In any case, you have to be bananas to get up to your elbows in code and sort the whole lot out (although the accompanying manual does help by explaining the basic theory and algorithms of computer chess) – but if that's your cup of tea, go for it!

**Program Rotate Type** Application **Micro** Amstrad PCW 8256/8512 **Price** £24.95 **Supplier** Proteus Computing, 2 Ifley Road, Hammer-smith, London W6 0PA.

**I** was typing out a thesis for a pal recently which, naturally, included several learned scientific tables. And then I discovered a major problem of the stand-alone 8256 – if you're trying to print out something wider than a single sheet of A4, then you have yourself serious problems. I sorted things out by redesigning the tables, but if it's a spreadsheet you happen to be dealing with then you are in the market for a utility such as *Rotate*.

It'll print out a text file normal east-west in addition to the 'sideways' north-south, and it'll do it in one of four fonts. Line and Character spacing, Character width and so on, can also be altered to suit. Of its type, one of the best.

continued on page 60 ▶



**Program Qmail Type** Application **Micro** Amstrad PCW 8256/8512 **Price** £29.95 **Supplier** Proteus Computing, 2 Ifeffy Road, Hammer-smith, London W6 0PA.



## Atari ST

**Program The Pinball Factory Type** Arcade **Micro** Atari ST **Price** £19.95 **Supplier** Microdeal, PO Box 68, St Austell, Cornwall PL25 4YB.

**P**inball – in case you didn't know it – is making a comeback. Go into your local arcade and you'll see some pretty snazzy tables, complete with multiple playing areas, sampled sound effects and more flashing lights than the average Miss Selfridge. The only problem is that it's an expensive pastime. 10 pence per ball (the standard price in central London I'm afraid) is on the steep side – so maybe if you're an ST owner, you might want to try this one.



Pinball Factory is, as you might expect, a pinball con-

# Nothing's sacred in Antirad

**Program The Sacred Armour of Antirad Type** Arcade Adventure **Micro** Commodore 64 **Price** £8.99 **Supplier** Palace Software, 275 Pentonville Road, London N1 9NL.

**Y**ou can argue that one arcade adventure is very much like another. The making of the map. The platforms and jumping. The collecting of objects. And it would be fair to say that *Antirad* is not breaking radically new ground, in that, yup, you make a map, jump around a bit, collect objects, etc, etc, but it would also be fair to say that it does it very well. In fact, a more polished and well thought out product you'd go a long way to find – it's the way Palace

seem to do things and like to be seen to do things.

*Antirad* involves you playing the part of Tai (that's Lat backwards, of course – very significant), one of a post holocaust race of humanoids who are now enslaved by aliens. Your job is to find the Sacred Armour (not difficult), activate it (much harder) and then go on to wipe the oppressors out (really difficult). At least we got as far as the Armour.

Of the two versions we've seen so far, the Commodore is graphically very impressive, but the play seems to flow a little better, in some ways, on the Spectrum. Maybe the Amstrad will have the best of both worlds, who knows? But what you will get for your money in this case is a game

that has had considerable effort and thought in all aspects of the programming and design, contains some cute touches and looks like it will take some time in the solving.



struction program, which gives you the chance to design your own tables, and then play them on your ST. And it's not bad.

Designing a table is simple enough, using typical mouse 'drag and click' techniques – in fact, a primitive art section is included for those impressive logos on the table surface. Results (as shown in the single demo table – why only one?) can be excellent, depending on the amount of time you're prepared to put into the thing.

Selections of bumpers and drop down targets can be selected and positioned... no possibility of multiple flippers, however, a common feature of many modern tables. Bumper reaction, ball speed bonus scores and gravity effects can be varied – all good stuff. And think of all those 10p's you'll be saving.

**Program Electronic Pool Type** Arcade **Micro** Atari ST **Price** £19.95 **Supplier** Microdeal, Box 69, St Austell, Cornwall PL25 4YB.

## BBC/Electron

**Program Quest For Freedom Type** Arcade **Micro** Electron **Price** £1.99 **Supplier** IJK Software, Unit 3c, Moorfields, Moor Park Avenue,

Bispham, Blackpool, Lancs FY2 0JY.

**E**rrrr – isn't there something familiar here? Last week, Audiogenic pushed out something very similar for about seven quid. Has someone got their wires crossed?

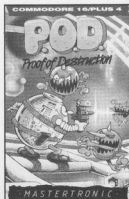
**Program Cluedo Type** Strategy **Micro** BBC B **Price** £12.95 (tape only) **Supplier** Virgin Games, 2-4 Vernon Yard, Portobello Road, London W11 2DX.



## C16/Plus 4

**Program Saboteur Type** Arcade **Micro** Commodore 16/Plus 4 **Price** £9.95 **Supplier** Durell Computers, Castle Lodge, Castle Green, Taunton TA1 4AB.

**Program POD Type** Arcade **Micro** Commodore 16/Plus 4 **Price** £1.99 **Supplier** Mastertronic, 8-10 Paul Street, London EC2.



**E**ee up. Do you remember back in the old days when 48K was a faraway dream and games were minimal but damn good stuff? Relive those heady days with *POD* on the C16.

Similar in many ways to that classic *Gridrunner*, this too is a *Centipede* variant (albeit 3rd generation). Zap, Blast, Kop. The action is fast, the nasties are mean – it's sensory overload time as you dodge your way through the hail of bullets and the like,

blasting away like crazy.

Sophisticated no, but if there was an award for fun per farthing – this would get it.

**Program Video Meanies**  
**Type Arcade Micro** Commodore 16/Plus4 **Price** £1.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.



**A**nother C16 job – but what the hell – it is only two quid? Squiddy block type graphics, fairly simple gameplay, but it has a certain lure. Maybe a few of the more 'up market' programmers ought to take a look at some of these games once in a while, if only to get back to their programming roots – then we might get some enthusiasm back into some of the full price market.

## Commodore 64

**Program Street Surfer Type** Arcade **Micro** Commodore 64 **Price** £2.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2

**I**t's a sort of Greenpeace version of *Hang On* – you're on a skateboard, avoiding cars, re-cycling empty cola bottles (surely this isn't a Virgin game?), taking drinks from strange men – that sort of thing. Fabby stuff.

**Program 180 Type** Arcade Simulation **Micro** Commodore 64 **Price** £2.99 **Sup-**

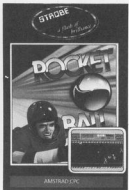
**plier** Mastertronic, 8–10 Paul Street, London EC2



**Program Glider Rider Type** Arcade **Micro** Commodore 64 **Price** £8.95 **Supplier** Quicksilver, Argus Press Software, Victory House, Leicester Place, London WC2.

**A**lmost identical to the Spectrum version – up to and including the soundtrack – a tribute to the 128/Plus 2's capabilities.

**Program Rocketball Type** Arcade **Micro** Commodore 64 **Price** £6.95 **Supplier** IJK Software, Unit 3c, Moorfields, Moor Park Avenue, Bispham, Blackpool, Lancs FY2 0JY.



**G**asp – a re-release of a title that made the *Commodore Horizons* Top Three of 1985. Roller-ball type action that might not make you gasp with wonder at its technical wizardry, but is suitably addictive for those with a violent disposition.

Probably still worth the price 12 months on. Altogether now – Houston, Houston, Houston, Houston...

**Program First II – The Legend**  
**Continues Type** Arcade **Micro** Commodore 64 **Price** £9.95 **Supplier** Melbourne House, 60 High Street, Hampton Wick, Kingston upon Thames, Surrey KT1 4DB.

**Program Shanghai Type** Strategy **Micro** Commodore 64 **Price** £12.99 (disc only) **Supplier** Activision UK, 23 Pond Street, London NW3.

**S**hanghai – I was under the impression it was darteze for getting the treble, double and a single of one number – but no, as far as Activision is concerned, it's a 'captivating strategy challenge derived from the ancient Chinese game of Mah Jongg'.

Well, let's get things straight first – *Shanghai* is a strategy challenge derived from the ancient English game of Patience – but using Mah Jongg tiles instead of the conventional playing cards. The rules are simple enough – you find pairs of tiles (among the 144), match them up and so remove them from the board. The complication is that the tiles are built up in a pattern of stacks and lines called 'The Dragon' – and the only tiles eligible for pairing are those both visible and at the end of a line.

Various game options are given – you can play solitaire, against an opponent but most interestingly of all, against the clock. This puts that little bit of extra excitement and pressure on the participants.

The graphics are, on the Commodore 64, frankly, bad. White tiles on a red background, not only is this dull, but it makes tile recognition a big problem. On the Amiga however – wow! The display simply looks like a pile of beautifully designed Mah Jongg tiles.

Initially, especially after viewing the Amiga version, we hooted at *Shanghai* on the 64. Since then, however, the game has proved unnervingly addictive to one member of staff – this game certainly has some lure that you might like to try out. Pricey for what it is, though.

## Spectrum

**Program 180 Type** Arcade Simulation **Micro** Spectrum **Price** £2.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

**Program Crimebusters Inc Type** Arcade **Micro** Spectrum **Price** £6.90 **Supplier** IJK Software, Unit 3c, Moorfields, Moor Park Avenue, Bispham, Blackpool, Lancs FY2 0JY.

**Program Caretaker Type** Educational **Micro** Spectrum **Price** £6.00 **Supplier** The Boo Software, 8 Byrony Way, Dunstable, Beds.

**T**his is certainly a release with its heart in the right place – a program to attempt to teach children about how to deal with various 'dangers in their environment'. As it happens, these vary from playing with matches and medicine bottles through to dealing with strangers.

The program (written in pretty unsophisticated Basic) presents various situations in a quiz/multiple choice format with the correct answer given straight after.

Possibly of some use in a classroom situation (and it is being converted to the BBC soon), it's not striking enough to use on unsupervised kids, and while the budding market in sex manuals for children might suggest there are quite a number of silly parents in the world, surely no-one would be too embarrassed to tell their offspring about these kinds of things, would they?

**Program Hi-Soft Basic Type** Utility **Micro** Spectrum **Price** £15.95 **Supplier** Hi-Soft, The Old School, Greenfield, Bedford MK45 5DE.

**W**hat have ZX Spectrum owners been waiting, 'literally years', for? What else? 'A fast, floating-point Basic compiler'. And there was me thinking it was a decent version of *Defender*. No laughing in the back of the class there – the specs make this look like a first class compiler – keep your eyes peeled for a full review on the Software pages soon.

# No changes here, thanks

Whatever happened to change in the personal computer industry, that brave new world of 32-bit super-PC's with more memory than a machine code-crazed hacker could have dreamed of in 1980. Change? What change? Just look at some of the newest machines on the market.

- 1) The Sinclair ZX Spectrum 128+2. The latest restyle of a machine which first came on the market way back in 1982.
- 2) The Commodore C64C. A 'replacement' for the 64.
- 3) The BBC Master Compact. A dressed up version of the old BBC Micro, with the odd added doobrie to make it look a little jazzier and up to date.
- 4) The Amstrad PC1512. A nice inexpensive IBM PC compatible machine.

So there we have four 'new' releases, based on technology going back some four and, in the case of the Amstrad PC, five years. So what happened to this change thing anyway?

Cast your mind back to the late seventies. If you were fairly well-off, you might run to a Commodore Pet, a Nascom, a Tandy TRS-80, or even an Apple II.

Then suddenly the world in general discovered personal computing and things started to change.

This period of metamorphosis was incredibly rapid. Machines' facilities started to increase, and the prices to fall. Maybe the catalyst that

sparked off this rapid change was none other than Clive Sinclair, who I seem to remember was once quoted as seeing no future for the computer in the home, and many a machine had its heyday trying to compete with Clive's little black box.

Then suddenly the rapid changes slowed, and have almost ground to a halt when we find ourselves in the situation described above.

Change in the PC industry seems almost to have dried up, but maybe the reasons for this are amongst the following. As the technology advances, so it becomes more expensive, and people are unwilling to risk spending a large sum of money on a machine if they fear it is to become obsolete within a short time. Also with the increase in complexity, software development time increases, and this means some measure of stability is necessary. The people who are spending the real money demand more sophistication, and to be able to plug in and go, and do something useful.

The IBM standard has been around now for five years since the release of the IBM PC in America, even though it took longer to reach our shores. I'll be cynical here and say that the major selling point of the PC was the fact that it was manufactured by IBM. Although the standard has been updated, with faster, improved processors, leading to the XT and AT, at

heart the standard is more or less the same, with no great change since 1981, only face-lifts.

Okay, so there are the mavericks. The Apple Macintosh has never really achieved the same following or appreciation as the II, being regarded in some quarters as a 'toy for the rich', and be honest, can anyone actually see the IIGS catching on? Then of course we have the Atari ST range, which isn't all it might be, and the all time hard-core computer-freaks fantasy machine, the Commodore Amiga, which admittedly looks very nice, but its not for the individual at that price!

The IBM standard may not be the best, but it has sold many a machine and will sell many more.

Software sells hardware, and a machine without software will find it difficult to compete with a machine that has lots of software, even though the newer machine may have more features, more memory. The other-lessons learnt over the years are that a new machine is bound to have some bugs in it. Give a machine some time though and eventually people will discover, if not all, then at least the worst ones. And of course in this day and age a machine with no standard operating system is going to be a real dead duck.

Change — who needs it anyway?

Antony J Shepherd

## NEXT WEEK

### Hardware Joyball

Another designer joystick from Euromax, the Joyball, is put through its paces. How does it stand up to three days of non-stop alien-zapping? Chris Jenkins carries out the tests.

### Disciple

Could this be the ultimate Spectrum add-on? Rockfort's general purpose Disciple contains both a disc and printer interface among its connections. Read the full review in *Popular*.

### Championship Bowls

All those sports simulations on the market, and no-one thought of Bowls... except Colin Speed, that is.

Type in Colin's Spectrum machine-code listing for a free Championship Bowls game.

### PCW Database

Keep your names and addresses handy with our card index database listing for the PCW machines.

### Games

Academy from Tau Ceti author Pete Cooke, plus *The Colour of Magic*, Fergus McNeill's latest opus.

## Hackers



# FROST BYTE

by

~~mikro~~  
G E N

Spectrum Amstrad  
Cassette  
£8.95  
Amstrad Disc  
£13.95



Steinar

U.S. GOLD

ocean

DIGITAL  
INTEGRATION D

ACTIVISION  
HOME COMPUTER SOFTWARE

They sold a

# MILLION

The **HIT SQUAD** have  
put together **FOUR**  
**No.1**  
Blockbusters  
for this **NEW**  
games  
compilation

Featuring:  
**ARIEL DOGFIGHTS**  
**JUNGLE COMBAT**  
**MARTIAL ARTS**  
and of course...  
**GHOSTBUSTING!!**  
All in one special  
twin - cassette  
pack for your  
**COMMODORE**  
**SPECTRUM**  
or **AMSTRAD**

SPECTRUM

**£9.95**

COMMODORE

CASSETTE

DISK

**£9.95**

**14.95**

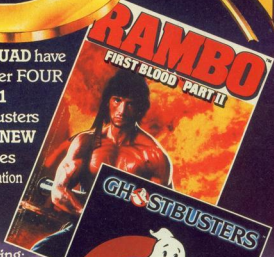
AMSTRAD

CASSETTE

DISK

**£9.95**

**14.95**



FROM ALL GOOD  
SOFTWARE DEALERS

THE FINEST  
FROM THE BEST

**THE HIT SQUAD**

**THE HIT SQUAD**

